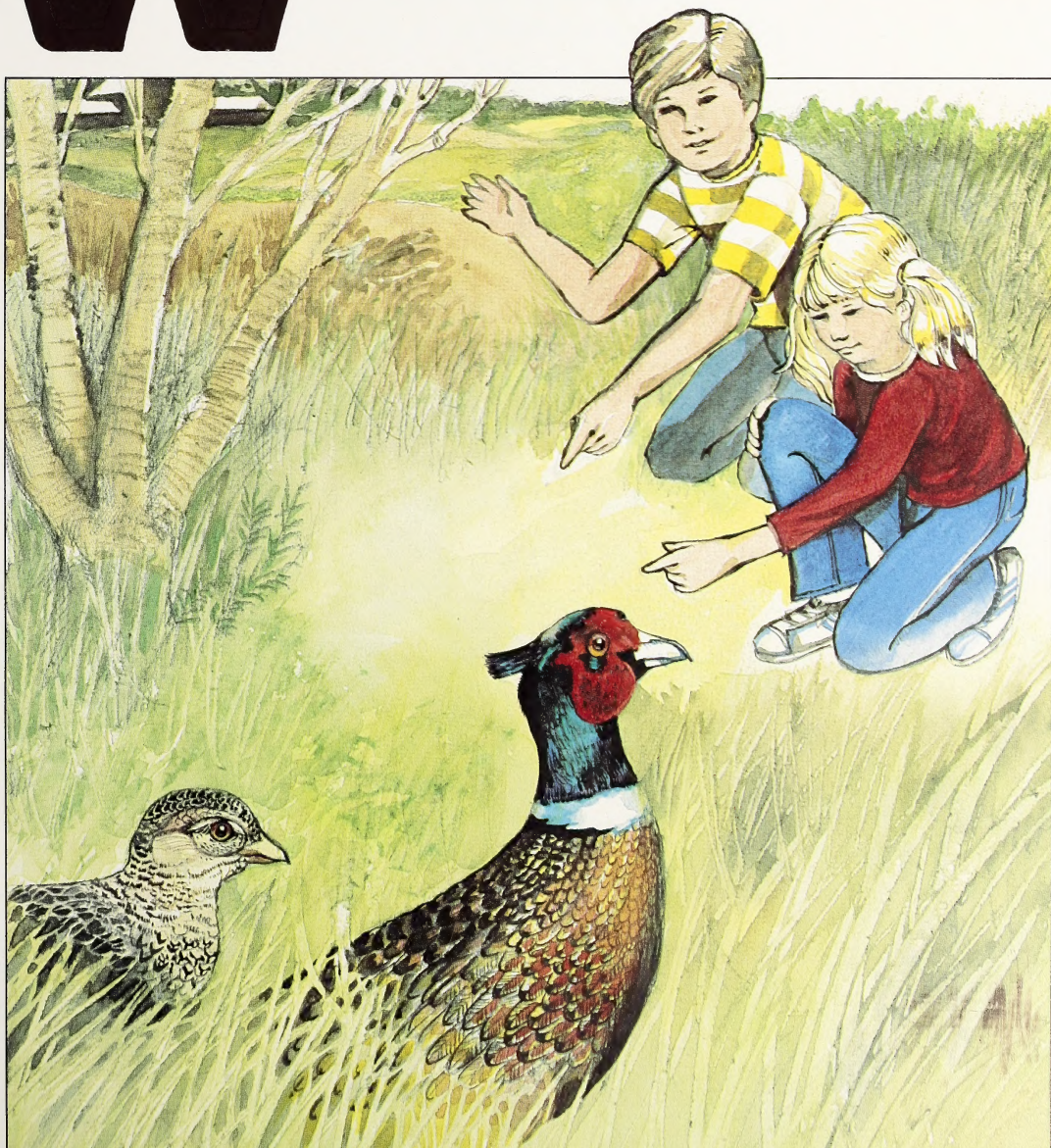


JUNIOR MANUAL

LIVING WITH WILDLIFE



The Recreation, Parks and Wildlife Foundation of Alberta is pleased and proud to participate in the development of this 4-H junior wildlife habitat manual. It is hoped that the objectives of the Foundation can be fostered through the efforts of the youth of Alberta for the greater benefit of all residents.

The objectives of the Foundation are

- to develop or maintain recreational programs, facilities and services;
- to develop or maintain parks;
- to manage and conserve fish and wildlife.

For further information about the Foundation, its work, and how you can participate and assist, contact

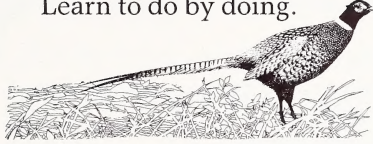
Chuck Moser
Executive Director
Recreation, Parks and Wildlife
Foundation
6th, Floor, Pacific Plaza
10909 Jasper Avenue
Edmonton, Alberta
T5J 3M9
Telephone: (403) 420-1345



RECREATION, PARKS AND WILDLIFE FOUNDATION

4-H MOTTO

Learn to do by doing.



4-H PLEDGE

I pledge

My HEAD to clearer thinking,

My HEART to greater loyalty,

My HANDS to larger service,

My HEALTH to better living,

For my club, my community and my country.

4-H GRACE

(Tune to Auld Lang Syne)

We thank thee, Lord, for blessings great

On this, our own fair land.

Teach us to serve thee joyfully,

With head, heart, health and hand.



Table of Contents

Page	
3	Introducing ... Farley Pheasant Other Wildlife Projects Achievement Day Individual Project
4	Lesson 1 All Living Things Are Related
6	Lesson 2 More Wildlife Relationships
8	Lesson 3 Five Plant And Animal Regions
10	Lesson 4 The Ring-Necked Pheasant Comes To Alberta
12	Lesson 5 Problems Facing The Pheasant
14	Lesson 6 Life Cycle Of The Pheasant
17	Lesson 7 Different Habitat Needs In Each Season
21	Lesson 8 Pheasant Range In Alberta
24	Lesson 9 These Practices Harm Wildlife
26	Lesson 10 These Practices Help Wildlife
28	Answer Section
29	Fish and Wildlife Offices
30	References
31	Metric Conversion Table

PLUS
Fact Sheets
Pheasant Game Of Life

Introducing . . .



Farley Pheasant

Farley welcomes you to the 4-H junior **Living with Wildlife** project. He comes to this project on behalf of all his family and wildlife friends living in Alberta. Farley needs your help to solve a problem. The problem facing not only the ring-necked pheasant but many of our wildlife species today is disappearing habitat--they are running out of places to live.

He knows you agree that wildlife are important. You want to help or you wouldn't be in this project. He is going to take you through a number of activities showing you how man and wildlife can live together more successfully. The project concentrates on the ring-necked pheasant but many measures to improve pheasant habitat also benefit other wildlife.

The project is made up of this project book which contains fact sheets for each of the ten lessons in a pocket at the back of the book. You must read the fact sheet relating to each lesson in order to do the lesson's activities. Also in the pocket is a pheasant game to play with your friends. Good luck with your project. Have fun learning about Farley and his wildlife friends.

The project was produced and funded in co-operation with 4-H Branch of Alberta Agriculture, the Fish and Wildlife Division of Alberta Energy and Natural Resources, the Canadian Wildlife Service, and the Recreation, Parks and Wildlife Foundation.

Other Wildlife Projects

If you want to continue working with wildlife after you finish this project, there are other 4-H projects you can take. The next project in the habitat series is **Working with Wildlife**. It introduces you to many other Alberta wildlife species and how you can help improve habitat.

The **4-H Pheasant Project** is a project to raise pheasant chicks from one day old to 12 to 14 weeks old, when they are released to the wild. The Brooks Wildlife Centre supplies chicks and starter feed to all members who meet basic requirements. The members also must be responsible and sincere in their interest in pheasants.

Achievement Day

At the end of this project, members hold an Achievement day where they tour each member's farm. Each member gives a short talk on pheasant habitat on the farm. The member should point out examples of good and bad habitat and how habitat can be improved. This project book should be on display for all members to view.

Individual Project

If you complete this project on your own and want to know how you did, send your project book to the Brooks Wildlife Centre, Bag 1540, Brooks, Alberta, T0J 0J0 (362-4122). Staff at the centre will be glad to comment on your efforts and return your project book. If you have any questions or problems, write or phone the wildlife centre. The staff will be glad to help.

Lesson 1

All Living Things Are Related

Activity 1

Read Fact Sheet 1. Can you answer these questions? Circle the answers and check them in the Answer Section at the back of the book.

1. What would happen if all the plants in the world died?

- A. All herbivores would have to find other food.
- B. All herbivores would starve to death from lack of food.
- C. All living things would starve to death. First, herbivores would have nothing to eat and die. Then carnivores would have nothing to eat and starve too.

2. What is man?
- A. herbivore
 - B. carnivore
 - C. omnivore

3. All living things get their energy from:
- A. the sun.
 - B. electricity.
 - C. the moon.



Activity 2

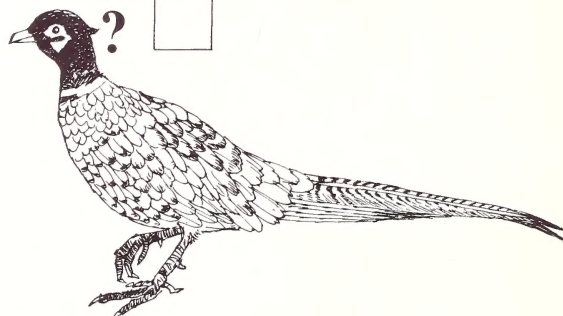
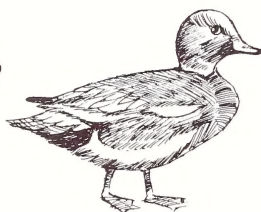
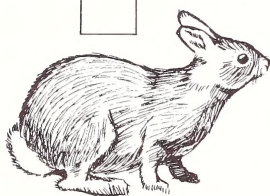
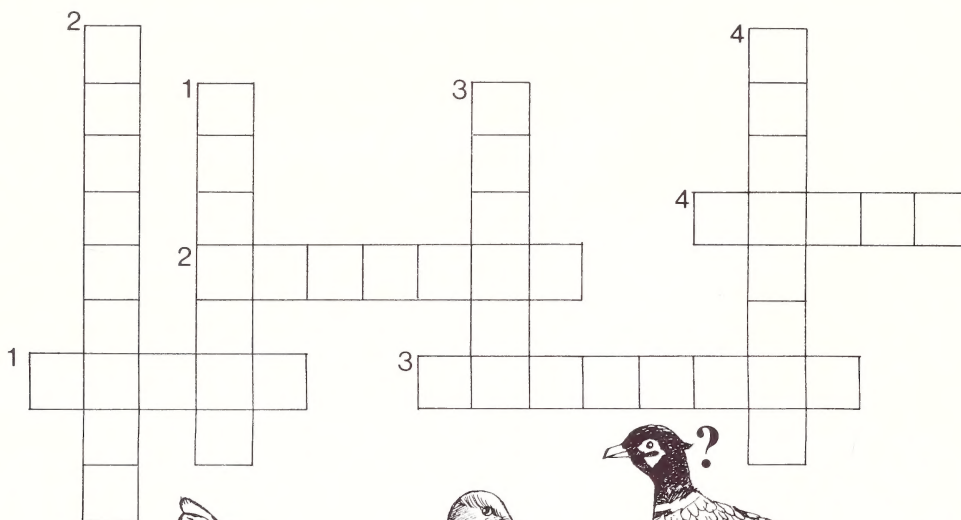
Take the sheet of stamps out of the pocket at the back of this book. Make a food web using several stamps. Draw lines between the stamps to indicate food relationships.

Lesson 2

More Wildlife Relationships

Activity 1

Read Fact Sheet 2. Can you do this crossword puzzle? Check your answers in the Answer Section.



ACROSS

1. Carrying capacity depends on food, water _____ and special needs
2. Two species in the same niche do this
3. Time when males defend territory
4. Habitat is made up of food, cover and

DOWN

1. Type of _____ decides size of home range
2. Animals defend
3. Prevents population from rising: limiting _____
4. Non-native species

Activity 2

Take a walk through your favorite wildlife area. Be sure to take a pencil and paper.

Write down all the wild animals and birds you see. When you get home, make food chains and a food web of all the wildlife you think might live and eat in the area of your walk, in the space below.

Why do you think each animal and bird you saw chose the area for its home? If you saw no wildlife, why do you think this was the case?

Pick an animal or bird you wanted to see but didn't. Do you think it might live here? Why?

A black and white line drawing of a young boy standing on the right side of a page. He is facing left, looking down at an open book he is holding with both hands. He is wearing a short-sleeved shirt, trousers, and shoes. A pencil is tucked into his belt. The page is filled with horizontal lines for writing.

Lesson 3

Five Plant And Animal Regions In Alberta



Activity 1

Read Fact Sheet 3. Can you match the scenes and animals below with their region? Some match up with more than one region.

Animals

moose

sage grouse

grizzly

elk

white-tailed deer

Farley Pheasant



Activity 2

One of the items in each group does not belong. Can you circle it? Check your answers in the Answer Section.

1

aspen tree

mountain

coyote

Parkland

great blue
heron

2

grasses

Prairie
rattlesnake

mountain
goat

rabbit

Farley Pheasant

3

white spruce

moose

lynx

Pronghorn
antelope

elk

4

grizzly bear

cougar

bighorn
sheep

prairie
rattlesnake

spruce
tree

Activity 3

What region do you live in? Read the description of your region again in Fact Sheet 3. Look at the land near your house. Is the description accurate? How many birds and animals in the description have you seen? Can you list others than can be found in your region? You may want to ask your local Fish and Wildlife Office for help. All Fish and Wildlife Offices in the province are listed in the back of this book. Ask your parents if you can phone or write the one nearest you.

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There is no handwriting or other markings on the paper.

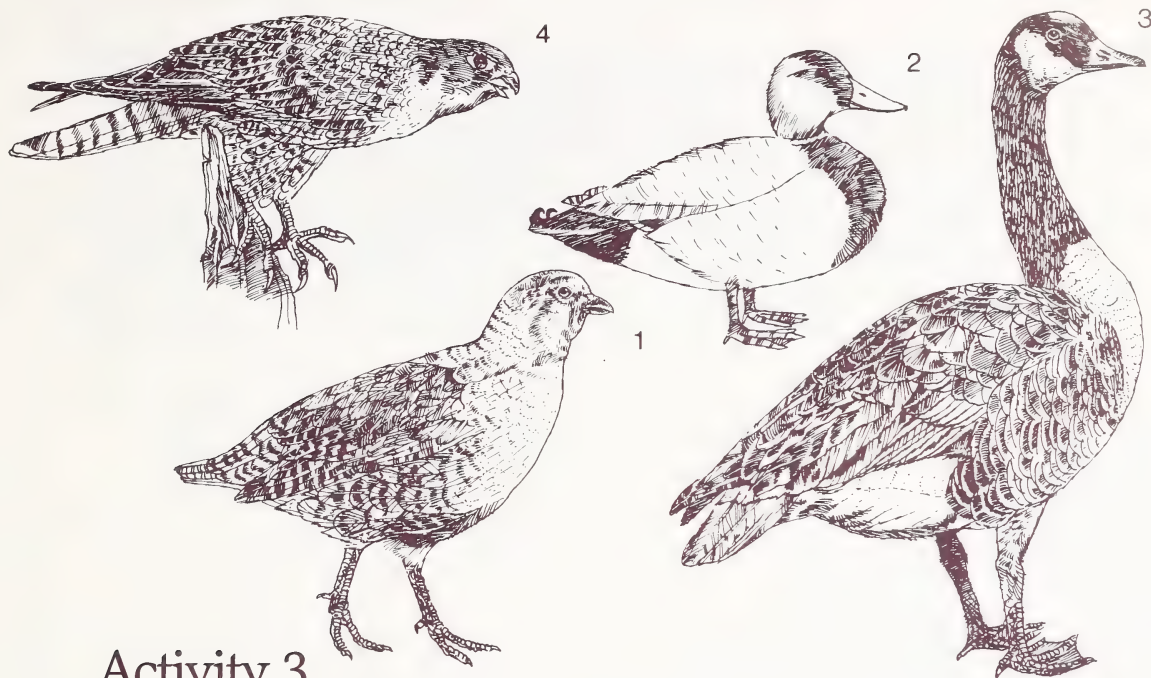
The Ring-Necked Pheasant Comes To Alberta

The Ring-Necked Pheasant Comes To Alberta



Activity 2

Below are birds you might find at the Brooks Wildlife Centre. Can you name them? Write the names below each bird. Check your answers in the Answer Section.

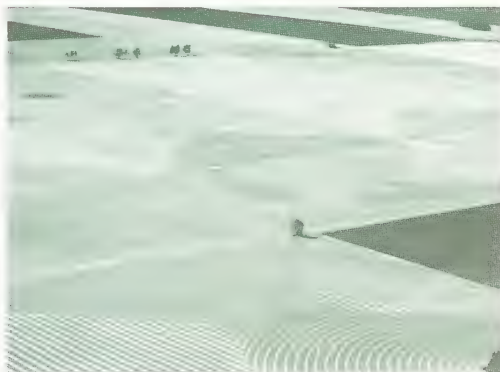


Activity 3

Below are four different scenes of prairie habitat. Put a circle around the scenes which would make good pheasant release sites. Put an X through scenes which would make poor release sites. Check your answers in the Answer Section.



1
3



2
4



Lesson 5

Problems Facing The Pheasant



Activity 1

Read Fact Sheet 5. List several problems the pheasant faces in Alberta. Put a star beside the most serious problem. Check your answers in the Answer Section.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Activity 2

Draw a map of your land or an area of land near where you live. Mark all fence rows, weed patches, shelterbelts, irrigation ditches, waste areas and wooded areas.

☐ Your home

Activity 3

Does the area you mapped in Activity 2 provide good habitat for pheasants. Are there any farming practices used on the land that are harmful to pheasants? Can you suggest at least three improvements?




Lesson 6

Life Cycle of the Pheasant

Activity 1

Read Fact Sheet 6 and 7. Can you complete Farley's seasonal clock? Take the stamps out of the pocket at the back of the book and pick an appropriate one for each month. Because some stamps belong in more than one box, you have to plan carefully so you have stamps for all 12 months. Check your answers in the Answer Section.

December		January	
<div></div>		<div></div>	
November	February		
<div></div>	<div></div>		
October			March
<div></div>			<div></div>
September			April
<div></div>			<div></div>
August		May	
<div></div>		<div></div>	
July		June	
<div></div>		<div></div>	

Activity 2

Can you complete the following sentences with the words listed below? Check your answers in the Answer Section.

1. Cocks crow to attract _____ and warn other cocks out of their _____.
2. If hens begin laying eggs before they find suitable nests, the eggs are sometimes deposited in _____.
3. Nests are destroyed sometimes by _____ and _____.
4. It takes a hen about _____ to lay a clutch of eggs.
5. Each nest contains an average of _____ eggs.
6. At _____ old, chicks can make short flights.
7. During the first three weeks, the brood stays within _____ to _____ acres of the nest.

twelve
predators
territory
two weeks

hens
dump nests
five

one week
ten
farm equipment



Activity 3

Color Farley Pheasant and his girlfriend Farrah as accurately as possible. Check your work with the colored illustration on page 13.



FARRAH

FARLEY

Lesson 7

Different Habitat Needs in Each Season



Activity 1

Read Fact Sheet 7 again. Put a T or F beside the following true or false statements. Check your answers in the Answer Section.

1. ____ Pheasants begin life as carnivores but become omnivores at about nine weeks of age.
2. ____ Young birds usually hatch about mid-April.
3. ____ To provide good pheasant habitat, at least six per cent of the land should be idle or waste.
4. ____ The narrower the travel lane, the less chance the pheasant has of being caught by predators.
5. ____ Farm crops continue to be an important food source in winter for pheasants.

Activity 2

Conduct a survey of pheasant populations near you. Surveys can be taken in all four seasons using the methods below.

WINTER

This survey is to find the ratio of cocks to hens. It should be taken when snow is on the ground and during a cold period of several days. Look for areas of heavy cover (low brushy growth and/or cattails) with a food source nearby (most often grain fields or feed stations). Look for pheasant tracks and follow them to winter areas. Use binoculars to help you find the birds. A dog can also help find and flush the birds.



Number of cocks _____

Number of hens _____

Ratio (divide the number of hens by the number of cocks) _____

SPRING

For this survey, count the number of crowing cocks in an area. It should be done in late April or early May on a clear calm day when the birds can be heard. Their crowing is a two syllable noise, "errr-errr".

Pheasants are very active a half hour before and after sunrise and a half hour before sunset.

A cock crows once every two minutes in the spring. Set up listening posts every two kilometres in the area to be surveyed and count all crowing males that can be heard.



Number of cocks (Post 1) _____

Number of hens
(Use winter ratio to estimate) _____

Number of cocks (Post 2) _____

Number of hens
(Use winter ratio) _____

SUMMER

By counting pheasant brood numbers, this survey tells the size and age of the birds. It also tells how successful the hatching season was. It should be taken in late August or early September when the crops are being harvested. The brood becomes more active at this time and can be seen more easily when there is less cover.

Again, a half hour before and after sunrise or a half hour before sunset are the best times to take the survey. Travel gravel roads slowly on foot, horseback or in a vehicle. Broods come out to get grit at the road's edge.

When you see a brood, try to get a complete count by flushing them with noise or a dog. With this count you can tell age. The average brood size starts out around 12 to 14 and decreases due to natural mortality.

Number of chicks in the brood _____



FALL

Fish and Wildlife staff set up hunter check stations in selected areas each hunting season. Staff count the number of birds killed, their ages and condition.



This image shows a single sheet of white paper with horizontal blue or grey ruling lines, typical of notebook paper. The lines are evenly spaced and run across the width of the page. There is no handwriting or other markings on the paper.

Lesson 8

Pheasant Range in Alberta



PHEASANT RANGE IN ALBERTA



GOOD HABITAT



DRYLAND



VARIETY



BURNING



WASTELAND

Activity 1

Read Fact Sheet 8. Can you unscramble the following words? Check your answers in the Answer Section.

1. nursthoë trabale (clue: where best pheasant living conditions are found)

2. reativy (clue: good habitat has this)

3. konchios (clue: important to winter survival)

4. scheeribid (clue: harmful to pheasants)

5. leanis (clue: problem in dry areas)

6. wandeltas (clue: ideal pheasant cover)

7. larddny (clue: lacks trees)

8. vertal slean (clue: fences)

9. agritirnio (clue: changes in method affect habitat)

10. gunnirb (clue: destroys habitat)

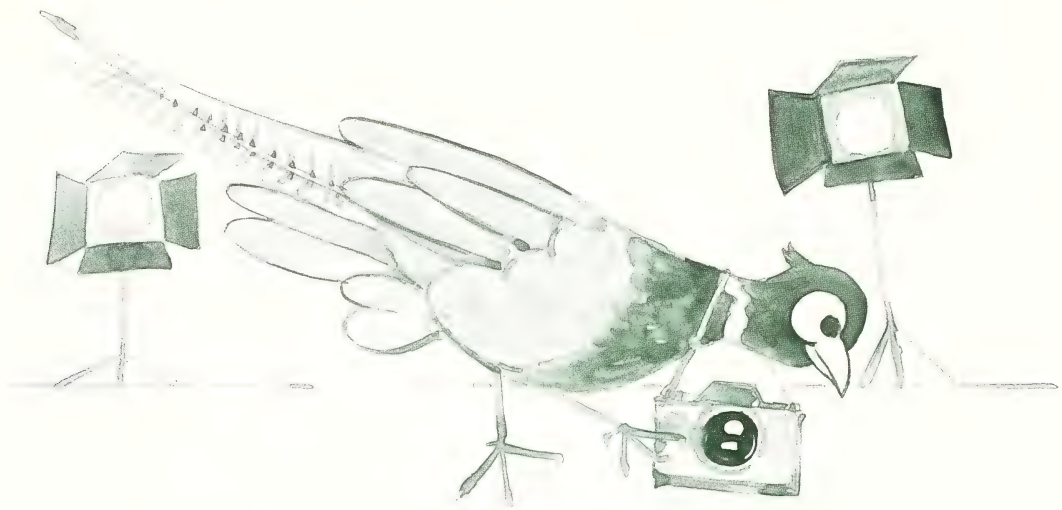
saline
travel lanes
burning
Southern Alberta

variety
irrigation
wasteland

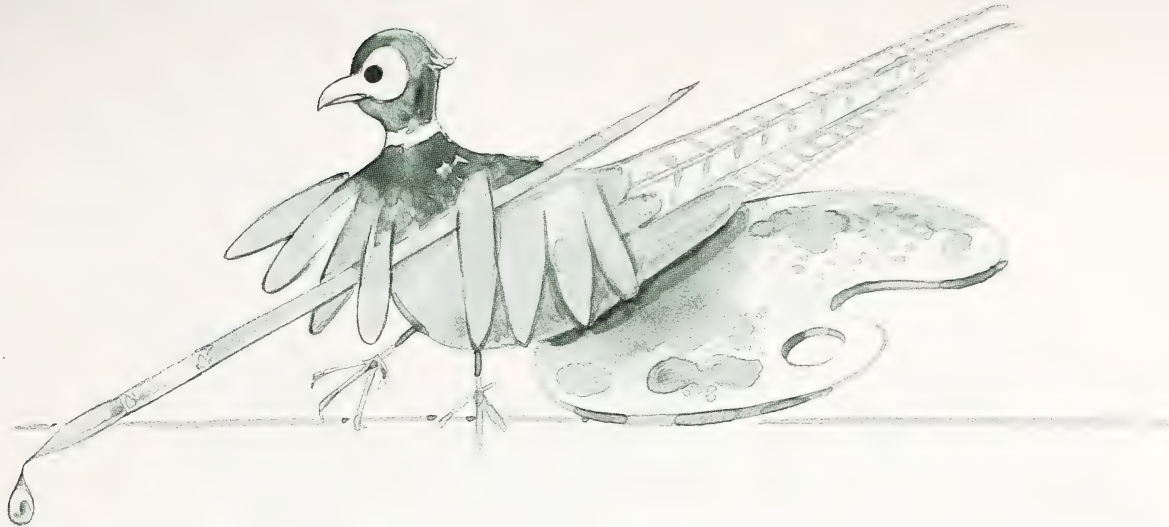
chinook
dryland
herbicides

Activity 2

Draw or photograph a scene showing good pheasant habitat and a scene showing poor pheasant habitat.



Good Pheasant Habitat



Poor Pheasant Habitat

Lesson 9

These Practices Harm Wildlife



Activity 1

Read Fact Sheet 9. Can you unscramble the following words? Check your answers in the Answer Section.

ealt wopglin

itespicesd

oneisor

subrh loveram

zaggnirerov

leary gealilt

unbring

late plowing
overgrazing
pesticides

brush removal
erosion
early tillage

burning

Activity 2

How would you change some of the practices used on your farm to help wildlife? Describe how they would also benefit the land.

This image shows a single sheet of white paper with horizontal blue or grey ruling lines, typical of notebook paper. The lines are evenly spaced and run across the width of the page. There is no handwriting or other markings on the paper.

Activity 3

Build a brushpile close to cover along the edge of your cropland. You can use any kind of material. For the base, use old machinery, scrap metal, lumber, old wire, heavy limbs or logs. Do not destroy living cover, if possible. This heavy material should make up about one quarter of the brushpile. Add brush and branches to hide any junk you used. The finished brushpile should be about one and one half metres high and about five metres in diameter. You can add food to the brushpile by planting corn and grains. If you really want to do a nice job, add a screen around it by planting a row of poplar or caragana.

Lesson 10

These Practices Help Wildlife



Activity 1

Read Fact Sheet 10. Can you fill in the blanks with the words listed below? Check your answers in the Answer Section.

1. Shelterbelts make good _____ and _____ for wildlife.
2. A row of _____ in a shelterbelt provides good winter protection.
3. Cover plants provide good winter _____ and _____ sources.
4. _____ along the edge of crops provide _____ and _____.
5. _____ may be worthless to livestock but they mean a lot to wildlife.
6. Odd areas should be protected from _____ and _____.
7. _____ and _____ added to rockpiles make good emergency food and winter cover.
8. Gullies are a sign of soil _____ and should be filled in.
9. A feeding program must _____ all winter as birds begin to _____ on the food source.
10. Thick hedges can be used as livestock _____, to stop _____ erosion and to trap _____.

protection
erosion
depend
travel lanes
escape cover
fences
wind

brush
brush piles
odd areas
straw
cover
evergreens

moisture
grazing
continue
food
fire
travel

Activity 2

Draw a map of your land. What would you do to improve it for wildlife use? Add all improvements in a different color.

Activity 3

How has this project improved your knowledge of wildlife habitat?

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There is no text or other markings on the paper.

Lesson 1

1. C 2. C 3. A

Activity 1



1. mountain 2. mountain goat 3. pronghorn antelope 4. prairie rattlesnake

Activity 2

1. Hungarian Partridge 2. Mallard 3. Canada Goose 4. Peregrine Falcon

1. Good release site 2. Bad release site 3. Bad release site 4. Good release site

Activity 5

1. Habitat Loss* 2. Weather 3. Predators 4. Diseases 5. Pesticides 6. Hunting

Activity 1

Mating begins. (mid April)

Most nesting begins. (May)

Most chicks are hatched. (mid June)

Hens renest till this month. (August)

Adult plumage replaces juvenile plumage. (mid July)

Lots of food is available. (September, October)

Pheasants move to lowland area. (October)

Juveniles look like adults. (end of November)

The hardest time of year. (December, January, February)

Birds move to brushy cover in bad weather. (December, January, February)

Birds eat wild fruits and berries. (December, January, February)

Males set up territories. (March)

1. hens, territory 2. dump nests 3. predators, farm equipment 4. two weeks 5. twelve
6. one week 7. five, ten

Activity 1

1. T 2. F—They hatch about mid-June 3. T 4. F—The wider the travel lane, the less chance the pheasant has of being caught. 5. T

Activity 1

1. Southern Alberta 2. variety 3. chinooks 4. herbicides 5. saline 6. wasteland
7. dryland 8. travellanes 9. irrigation 10. burning

Activity 1

late plowing, pesticides, erosion, shrub (brush) removal, overgrazing, early tillage, burning

Activity 1

1. cover, travel lanes 2. evergreens 3. protection, food 4. brush piles, travel, escape cover
5. odd areas 6. grazing, fire 7. straw, brush 8. erosion 9. continue, depend 10. fences, wind, moisture

Fish and Wildlife Offices

Athabasca

Box 1525
Provincial Building
T0G 0B0
(675-2419)

Barrhead

Box 917
Provincial Building
6203 - 49 Street
T0G 0E0
(674-3351)
(134-1236 RITE)

Blairmore

Box 1139
Crowsnest Mall
T0K 0E0
(562-2856)
(182-1101 RITE)

Bonnyville

Box 1950
Provincial Building
T0A 0L0
(826-3142)

Brooks

Box 909
Provincial Building
T0J 0J0
(362-5551)
(167-1130 RITE)

Calgary

#200 Sloan Square
5920 - 1A St. S.W.
T2H 0G1
(261-6423)
(161-6423 RITE)

Camrose

211 Provincial Building
T4V 1P6
(672-4411)
(143-1125 RITE)
(143-1132 RITE)

Canmore

Box 1420
Provincial Building
T0L 0M0
(678-2373)

Cardston

Box 388
Provincial Building
T0K 0K0
(653-4331)
(186-1101 RITE)

Claresholm

Box 1148
Provincial Building
T0L 0T0
(625-3301)
(168-1011 RITE)

Cochrane

Box 1420
Provincial Building
T0L 0W0
(932-2388)

Cold Lake

Box 158
Public Works Building
T0A 0V0
(639-3377)

Drumheller

Box 1918
Provincial Building
T0J 0Y0
(823-5740)
(164-1114 RITE)

Edmonton

Main Floor, Room #109
10363 - 108 Street
Sun Building
(427-3574)

Edson

Box 1390
Chanking Building
4926 - 1st Ave.
T0E 0P0
(723-3341)
(130-1101 RITE)

Evansburg

Box 216
Grassi Building
T0E 0T0
(727-3635)

Fairview

Box 879
Provincial Building
T0H 1L0
(835-2737)

Foremost

Box 238
Volliner Building
T0K 0X0
(867-3826)

Fort Chipewyan

Box 330
A.H.C. House
T0A 1G0
(697-3636)

Fort McMurray

Room 205
9714 Main Street
T9H 1S4
(743-7200)
(136-7200 RITE)

Grande Cache

Box 570
Provincial Building
T0E 0Y0
(827-3356)

Grande Prairie

#1801 Provincial Building
10320 - 99 Street
T8V 6J4
(539-2265)
(121-2265 RITE)

Hanna

Provincial Building
Courier Box 23
T0J 1P0
(854-4451)
(165-1137 RITE)

High Level

Box 28
Sellers and Brown Building
T0H 1Z0
(926-2238)

High Prairie

Box 236
Provincial Building
TOG 1E0
(523-4561)
(122-1101 RITE)

High River

Box 399
Provincial Building
T0L 1B0
(652-3232)
(177-1111 RITE)

Hinton

Box 303
Commercial Building
T0E 1B0
(865-3361)
(132-1101 RITE)

Kananaskis

Kananaskis Provincial Park
Box 1420
Cochrane, Alta.
T0L 0W0
(591-7222)

Lac La Biche

Box 275
Provincial Building
T0A 2C0
(623-4474)
(137-1247 RITE)

*Lethbridge

Sun Centre
530 - 8 Street South
T1J 2J8
(329-5266)
(181-5266 RITE)

Lloydminster

Provincial Building
5124 - 50 Street
T9V 0M3
(875-5506)
(145-1101 RITE)

Manning

Box 720
Civic Building
T0H 2M0
(836-3065)

Medicine Hat

Main Floor
Chinook Place
623 - 4 Street S.E.
T1A 0L1
(529-3680)
(184-1680 RITE)

Nordegg

General Delivery
T0M 2H0
(721-3949)

Olds

Box 1023
Provincial Building
T0M 1P0
(556-8421)
(154-1215 RITE)

Oyen

Box 64
Provincial Building
T0J 2J0
(664-3614)

*Peace River

P.O. Bag 900-38
T0H 2X0
(624-6246)
(120-1246 RITE)

Pincher Creek

2nd Floor
Provincial Building
T0K 1W0
(627-3366)
(180-1113 RITE)

Ponoka

Box 547
Provincial Building
T0C 2H0
(783-3337)
(159-1011 RITE)

Provost

Box 549
5129 - 50 Street
T0B 3S0
(753-2433)

*Red Deer

Box 5002, 3rd Floor
Parkland Square
4901 - 48 St.
T4N 0M4
(343-5142)
(151-5142 RITE)

*Rocky Mountain House

Box 388
Mountain Ridge Plaza
T0M 1T0
(845-5357)
(150-1156 RITE)

*St. Paul

Box 1450
Eldorado Building
T0A 3A0
(645-6212)
(139-1313 RITE)

Slave Lake

Box 1370
Development Building
T0G 2A0
(849-2281)
(135-1217 RITE)

Smoky Lake

Box 690
Provincial Building
T0A 3C0
(656-3556)

Stettler

Box 298
Public Services Building
T0C 2L0
(742-4481)
(153-1119 RITE)

Stony Plain

Box 727
Provincial Building
T0E 2G0
(963-6131)

Strathmore

Box 537
3rd Avenue & 3rd Street
T0J 3H0
(934-3422)

Valleyview

Box 485
Provincial Building
T0H 3N0
(524-3605)

Vegreville

Box 597
Provincial Building
T0B 4L0
(632-3361)
(140-1116 RITE)

Vermilion

Box 1227
Provincial Building
T0B 4M0
(853-2811)
(141-1238 RITE)

Wetaskiwin

50th Avenue and 52nd Street
Provincial Building
T9A 0S7
(352-1250)
(144-1250 RITE)

Whitecourt

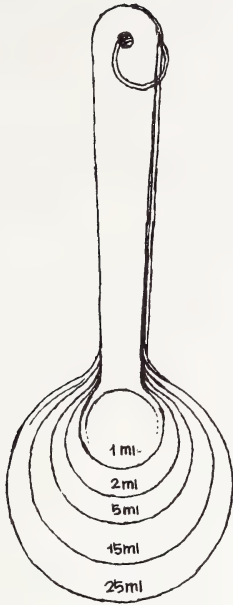
Provincial Building
T0E 2L0
(778-2515)

References

- Alberta Agriculture Policy for Distribution of Trees and Shrubs. 1976. Agdex 277/870-1.
- Benson, D.E. 1977. Helping Wildlife: Working with Nature. Wildlife Management Institute. 26 pp.
- Dasman, R.F. 1964. Wildlife Biology. John Wiley and Sons, Inc. 231 pp.
- Environmental, Land Use and Wildlife Management Concepts for the Junior and Senior 4-H Programs. 1982. PRISM Environmental Management Consultants.
- 4-H Acres for Wildlife Project. Cooperative Extension Service, Kansas State University, Manhattan, Kansas.
- Hardy, W.G. (ed.). 1967. Alberta -- A Natural History. M.G. Hurtig Publishers, Edmonton, Alberta. 343 pp.
- Harrington, R.F. and R.C. Passmore. 1972. Learning About the Environment. Canadian Wildlife Federation Publication. 62 pp.
- Health of the Land. n.d. A series of pamphlets on: Salinity; Burning, Zero Tillage; Water Control; Stubble Mulching; Grazing Systems; Depredation. Ducks Unlimited.
- National Rifle Association. 1976. Wildlife Management Principles--Practices 22 pp.
- Planting Farm, Field and Roadside Shelterbelts in Alberta. 1974. Alberta Agriculture Agdex 276/22.
- Predation on Livestock by Coyotes and Other Animals. 1978. Alberta Agriculture. Agdex 684-2.
- Preventing Bird Damage to Prairie Crops. 1982. Canadian Wildlife Service and Manitoba Dept. of Natural Resources.
- Protecting Streams and Rivers on Private Land. Pamphlet. Fish and Wildlife Division, Alberta Energy and Natural Resources.
- Round Bales for Goose Nesting. Pamphlet. Prepared jointly by Environment Canada, Canada Wildlife Service and Alberta Energy and Natural Resources, Fish and Wildlife Division.
- The SHARP Project, Phase I and II, Alberta Fish and Wildlife Division, Alberta Energy and Natural Resources, 1977.
- Shelterbelts in Alberta. Alberta Agriculture. Agdex 277/20-2. July 1978.
- Some Important Alberta Rodents and their Control. 1978. Alberta Agriculture Agdex 680-1.
- Teague, R.D. and E. Decker (eds.). 1979. Wildlife Conservation: Principles and Practices. The Wildlife Society, Washington, D.C. 280 pp.
- Waterfowl Damage Control Program. Pamphlet. Fish and Wildlife Division, Alberta Energy and Natural Resources.
- Wetlands, Canadian Wildlife Service Where Do We Live. 1980. Environment Canada Canadian Wildlife Service.
- Wildlife Habitat: A Handbook for Canada's Prairies and Parklands. Environment Canada, Canadian Wildlife Service. 51 pp.
- Woodlands and Wildlife: Making Your Property Attractive to Wildlife by Jenny Hassinger et al. 1979. Penn State University.

Metric Conversion Table

Approximate Conversion to Metric Measures



Metric measures are
available in these sizes

250 mL replaces 1 cup
500 mL replaces 2 cups

SYMBOL	WHEN YOU KNOW	MULTIPLY BY	TO FIND	SYMBOL	BASE UNIT
--------	------------------	----------------	------------	--------	-----------

Mass (weight)

oz.	ounces	28.349	grams	g	
lb.	pounds	0.454	kilograms	kg	
ton	short tons (2000 lbs)	0.907	tonnes	t	gram
g	grams	0.035	ounces	oz.	
t	tonnes (1000 kg)	1.102	short tons	ton	

Volume

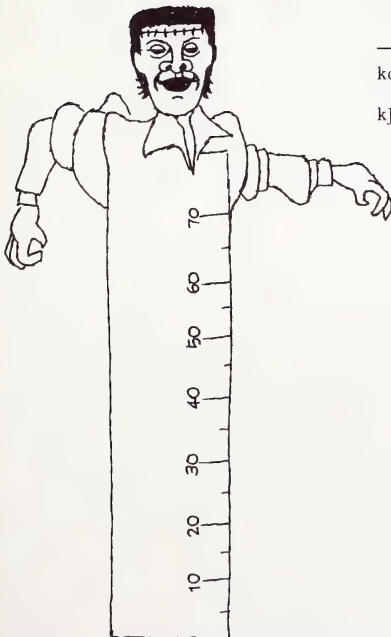
tsp.	teaspoons	5	millilitres	mL	
tbsp.	tablespoons	15	millilitres	mL	
fl.oz.	fluid ounces	28.413	millilitres	mL	
pt.	pints	0.568	litres	L	
qt.	quarts	1.137	litres	L	
gal.	gallons	4.546	litres	L	litres
bu.	bushels	36.370	litres	L	
mL	millilitres	0.035	fluid ounces	fl.oz.	
L	litres	1.760	pints	pt.	
L	litres	0.880	quarts	qt.	
L	litres	0.220	gallons	gal.	
L	litres	0.027	bushels	bu.	

Length

in.	inches	2.540	centimetres	cm	
ft.	feet	0.305	metres	m	
yd.	yards	0.914	metres	m	
mi.	miles	1.609	kilometres	km	
mm	millimetres	0.0394	inches	in.	metre
cm	centimetres	0.394	inches	in.	
m	metres	3.281	feet	ft.	
m	metres	1.094	yards	yd.	
km	kilometres	0.621	miles	mi.	

Energy

kcal	kilocalorie	4.186	kilojoules	kJ	
kJ	kilojoules	0.239	kilocalories	kcal	joule



Munster Metre
Measures Length



Sam Kilogram
Measures Weight



Lily Litre
Measures Volume

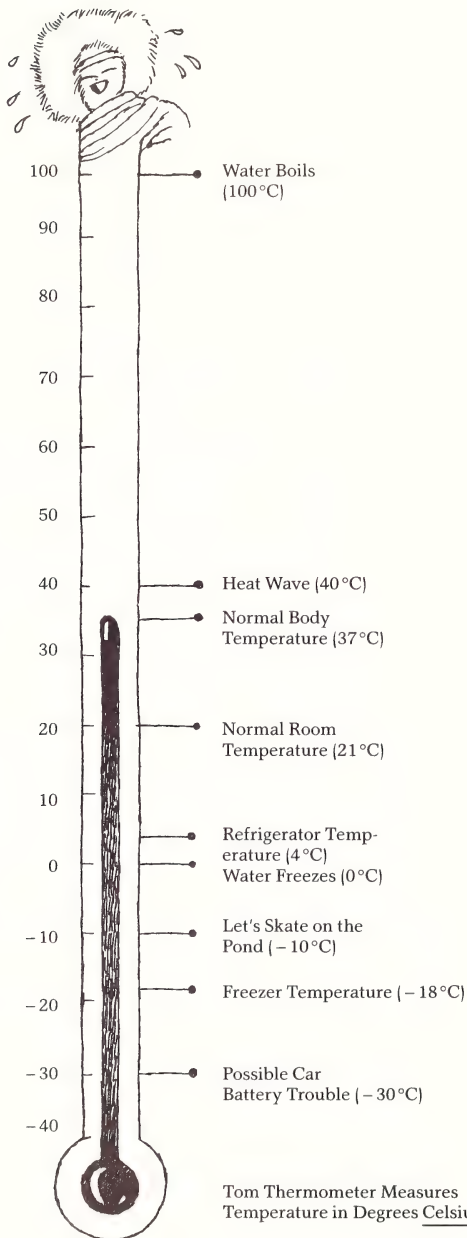
Metric Multiples and Prefixes Table

Multiplying Factor	Prefix	Symbol
1,000,000 = 10^6	mega (meg a)	M
1,000 = 10^3	kilo (kil o)	k
100 = 10^2	hecto (hek to)	h
10 = 10^1	deka (dek a)	da
(Base Unit) 1 = 10^0		
0.1 = 10^{-1}	deci (des i)	d
0.01 = 10^{-2}	centi (sen ti)	c
0.001 = 10^{-3}	milli (mil i)	m
0.000,001	micro (mi kro)	μ

(These prefixes may be applied to all metric base units.)

Example: Base Unit = litre

Add kilo to litre (symbol kL) = kilolitre. The multiplying factor is 1000. This means a kilolitre equals 1000 litres.)



Temperature: $^{\circ}\text{F} = 9/5 + 32$
 $^{\circ}\text{C} = 5/9 - 32$

Oven Temperatures:

	$^{\circ}\text{C}$	$^{\circ}\text{F}$
Very low	120-135	250-275
Low	150-165	300-325
Moderate	175-190	350-375
Hot	200-220	400-425
Very hot	230-245	450-475
Near boil	245-290	475-500

Additional Metric Information

from:

Metric Commission Canada
 Box 4000
 Ottawa, Ontario

Information Division
 Canada Department of Agriculture
 Ottawa, Ontario K1A 0C7

District Extension Office

OR

Publications Office
 Alberta Agriculture
 7000 - 113 Street
 Edmonton, Alberta T6H 5T6

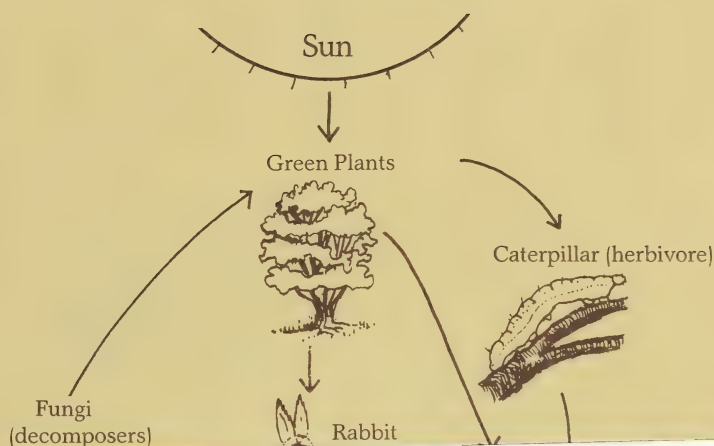
Fact Sheet 1

All Living Things are Related

Food Relationships

Food Chain

The most basic relationship among all living things is the food chain. The food chain is the transfer of food energy from one living thing to another. The sun is the source of energy for all living things. Plants convert the sun's energy into food. Herbivores are animals that get their energy by eating only plants. Examples include deer, rabbits, ducks and beaver. Carnivores get their energy by eating only animals. Examples include wolves, coyotes, owls and weasels. Omnivores, such as bears and ring-necked



April
Mating begins.



Dec., Jan., Feb.

Dec., Jan., Feb.
Birds eat wild fruits and berries.



Sept., Oct.

November
Juveniles look like adults.



Dec., Jan., Feb.
The hardest time of

August
Hens reneest till this month.



March
Males set up

May
Most nesting begins.



June
Most chicks are

Project Co-ordinator: Sandy Behnke
4-H Branch,
Alberta Agriculture

Writer: Cheryl Clarke

Graphic Designer: Bobby Mok

Editorial Committee: Douglas F. Culbert
Fish and Wildlife Division,
Alberta Energy and Natural Resources
Lyle Lester,
Fish and Wildlife Division,
Alberta Energy and Natural Resources
Dave Moyles,
Fish and Wildlife Division,
Alberta Energy and Natural Resources
Leonard J. Shandruk,
Canadian Wildlife Service,
Environment Canada

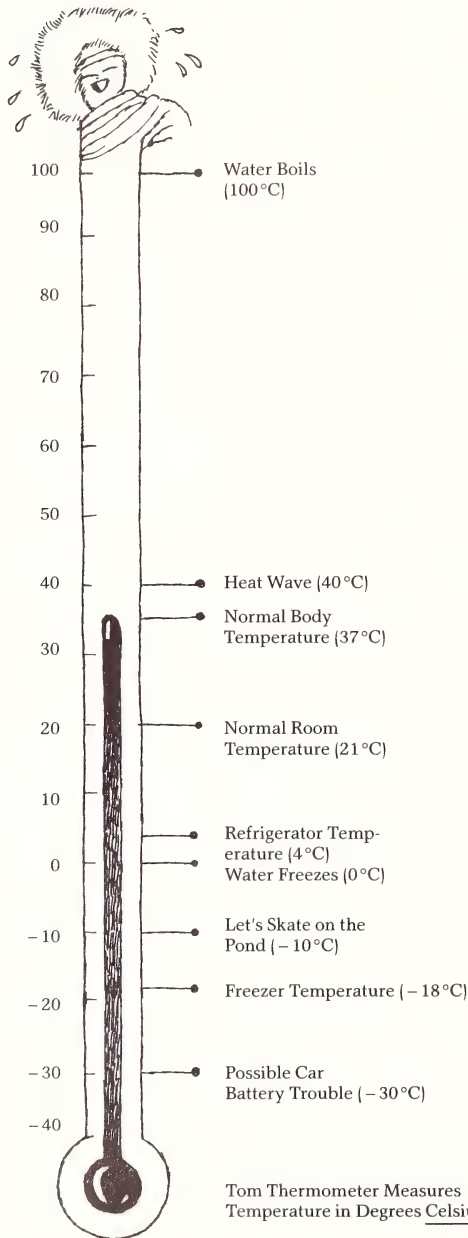
Metric Multiples and Prefixes Table

Multiplying Factor	Prefix	Symbol
1,000,000 = 10^6	mega (meg a)	M
1,000 = 10^3	kilo (kil o)	k
100 = 10^2	hecto (hek to)	h
10 = 10^1	deka (dek a)	da
(Base Unit) 1 = 10^0		
0.1 = 10^{-1}	deci (des i)	d
0.01 = 10^{-2}	centi (sen ti)	c
0.001 = 10^{-3}	milli (mil i)	m
0.000,001	micro (mi kro)	μ

(These prefixes may be applied to all metric base units.)

Example: Base Unit = litre

Add kilo to litre (symbol kL) = kilolitre. The multiplying factor is 1000. This means a kilolitre equals 1000 litres.)



Temperature: °F = $9/5 + 32$
°C = $5/9 - 32$

Oven Temperatures:

	°C	°F
Very low	120-135	250-275
Low	150-165	300-325
Moderate	175-190	350-375
Hot	200-220	400-425
Very hot	230-245	450-475
Near boil	245-290	475-500

Additional Metric Information

from:

Metric Commission Canada
Box 4000
Ottawa, Ontario

Information Division
Canada Department of Agriculture
Ottawa, Ontario K1A 0C7

District Extension Office

OR

Publications Office
Alberta Agriculture
7000 - 113 Street
Edmonton, Alberta T6H 5T6

Fact Sheet 1

All Living Things are Related

Food Relationships

Food Chain

The most basic relationship among all living things is the food chain. The food chain is the transfer of food energy from one living thing to another. The sun is the source of energy for all living things. Plants convert the sun's energy into food. Herbivores are animals that get their energy by eating only plants. Examples include deer, rabbits, ducks and beaver. Carnivores get their energy by eating only animals. Examples include wolves, coyotes, owls and weasels. Omnivores, such as bears and ring-necked pheasants, aren't fussy: they eat both plants and animals.

When animals die, organisms (decomposers) like bacteria and fungi break animal matter into nutrients used by green plants.



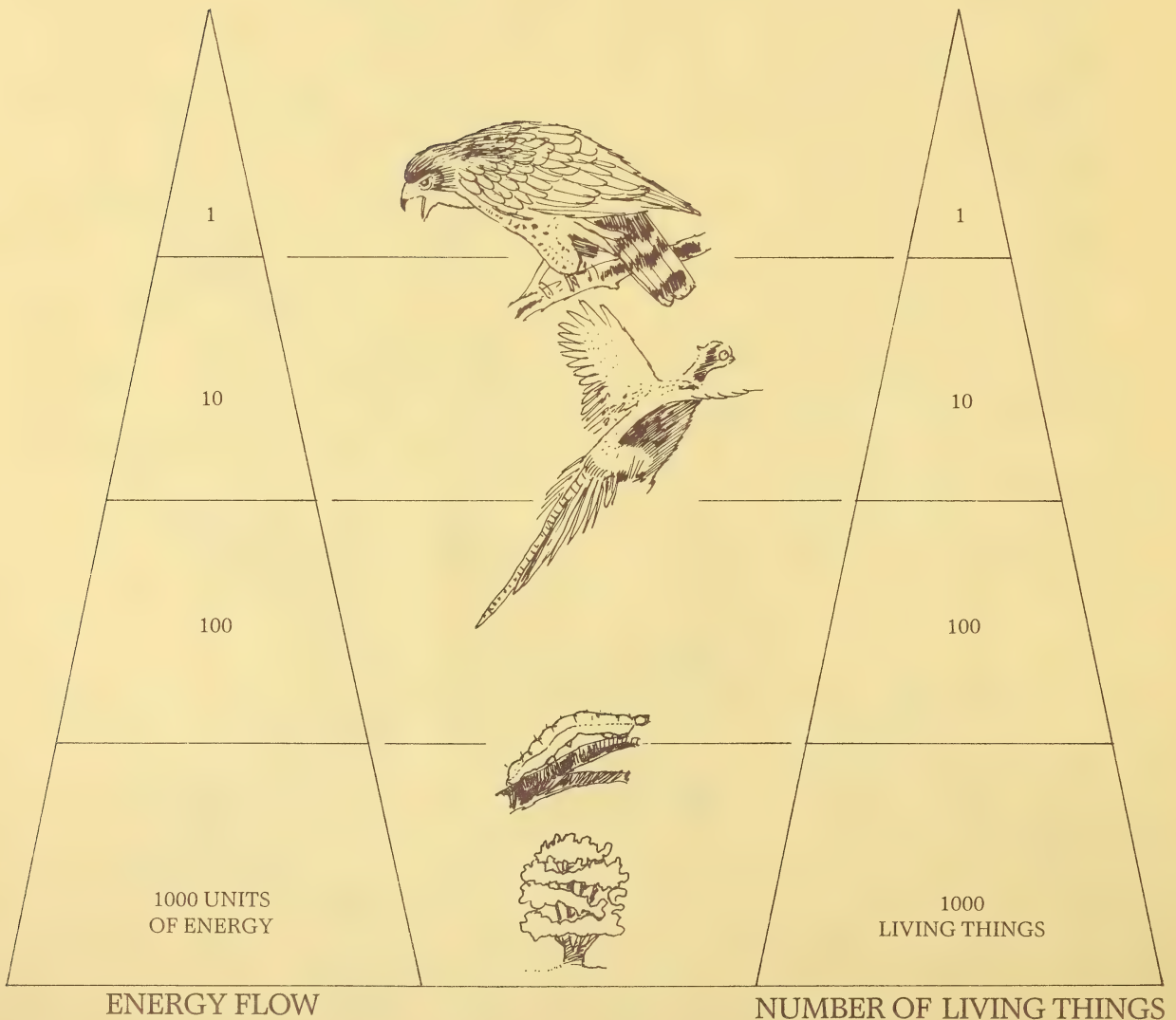
Food Web

Animals eat many different plants and animals for food. In any environment there are millions of food chains. These many food chains are known as a food web.

Food Pyramid

One herbivore must eat many plants to survive. One carnivore must eat several herbivores to survive. Because food energy is lost at each level of the food chain, the bottom layer of plants is broad. The second layer, herbivores, is narrower and the third layer, carnivores is narrower still. Thus, living things

in any environment form a food pyramid with many more plants than herbivores and many more herbivores than carnivores. Since the food relationship starts with plants, the quality of plants and vegetation in any area determines wildlife numbers and quality in the area.

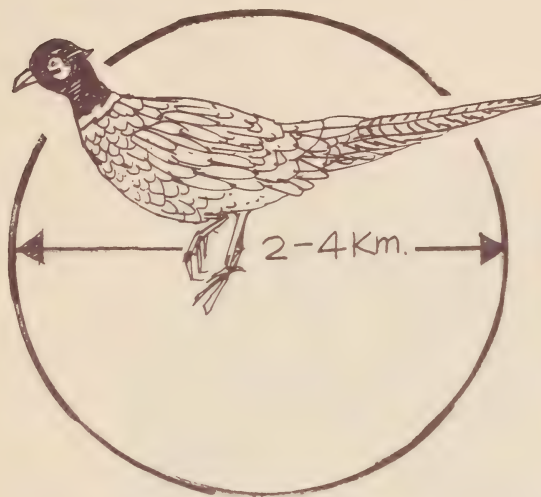


Fact Sheet 2

More Wildlife Relationships

Home Range

The distance an animal travels within an area to satisfy its need for food, water and cover is called the home range. The size of the home range varies with species. A weasel may travel one hectare while a larger predator such as a wolf may range several square kilometres. Pheasants rarely travel more than two to four kilometres.



Territory

A territory is an area within the home range which members of a species defend against members of the same species. Usually males defend a territory during breeding while females defend a territory during nesting and rearing young.

Habitat

For wildlife, habitat is made up mainly of three things -- food, cover and water. Each wildlife species must be able to find these three things in its habitat to survive. Some species have additional special requirements such as dancing grounds for sharp-tailed grouse and drumming logs for ruffed grouse. If these things are not available, the species cannot live in the area.

Habitat continuously changes. Changes may be gradual or rapid. Fires, floods and clearing cause rapid changes. Habitat on abandoned farmsteads changes gradually as it becomes overgrown with weeds, shrubs and trees.

Any change in land changes food and cover. As a result, different species occupy areas for different periods of time.

Niche

Each species occupies a certain habitat known as its niche. Other animals might live in the same or part of the same area but no two species occupy exactly the same niche. If two species try to occupy the same niche, they compete until one is driven out.

Any difference in use of food, water or cover means the niche is different. An example of two species occupying part of the same niche are the pheasant and the Hungarian partridge.

The pheasant usually occupies a niche which has 60 per cent cropland, 20 per cent high cover and 20 per cent low cover.

The Hungarian partridge usually occupies a niche that has 80 per cent cropland, 10 per cent low cover and 10 per cent high cover.

Pheasants live in the heart of irrigation country close to cover. The Hungarian partridge lives on the fringes of irrigation areas, in grass away from heavy cover.

Carrying Capacity

The number and kinds of wildlife a piece of land can support is known as its carrying capacity. Carrying capacity depends on quality, quantity and location of food, cover and water as well as the social habits of the animals living there. In other words, carrying capacity depends on habitat.

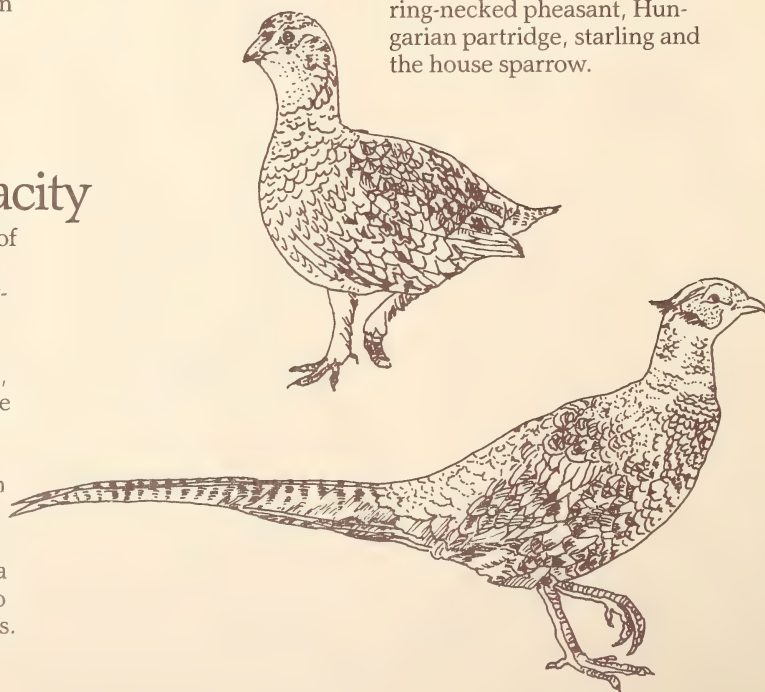
Just as pasture can only feed so many head of cattle, a piece of land can feed only so many deer, elk and pheasants. Any extras must move on or die.

Limiting Factors

Anything which prevents a group of animals (population) from increasing is a limiting factor. Lack of food, cover or water can be a limiting factor. Predators (animals that hunt other animals for food), hunting, disease, parasites, starvation and weather can also be limiting factors.

Native and Non-native Species

A native species is one that lives naturally in an area. Examples of animals native to Alberta include moose, coyotes, white-tailed deer, sharp-tailed grouse, grizzly bear and many others. A non-native species is one that is not naturally found in an area but has been brought to it by man and is able to survive. Examples of non-native wildlife species in Alberta include the ring-necked pheasant, Hungarian partridge, starling and the house sparrow.



Fact Sheet 3

Five Plant and Animal Regions

Alberta's plants and animals can be divided into five broad regions. Some plants and animals are found in only one region while others are found in several.

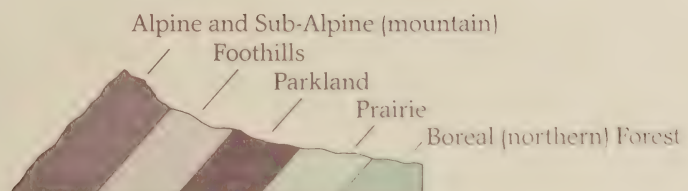
Prairie Region

Alberta's grassland prairies cover most of southern Alberta. Much of the area is ranchland or under cultivation. Few trees grow here except for planted windbreaks and shrubby growth along bottom lands, streams and coulees.

Wildlife species found only in this area include the prairie rattlesnake, horned lizard, sage grouse and pronghorn antelope. Other wildlife making their home here are prairie falcons, ferruginous hawks, weasels, badgers, coyotes, red foxes, white-tailed jack rabbits, cottontail rabbits, numerous small birds, ducks, geese, pheasants and a variety of shorebirds. Many species common to other regions such as the mule deer, beaver and ground squirrel also live here.



Key



Parkland Region

The aspen parkland in east central Alberta is an ecotone or area of transition. It has characteristics of the prairie region to the south and east, and the northern forest and foothills regions to the north and west. Along its western boundary groves of aspen mix with prairie. Large stream valleys are covered with aspen and willows. The countryside ranges from gently rolling to hilly. Trees and shrubs mix with cultivated fields. Patches of parkland can also be found within the northern forest region around Grande Prairie, Peace River and Fort Vermilion.

The plant variety in this ecotone region makes good habitat for wildlife. Species such as the white-tailed deer, mule deer, coyote, ducks and geese are numerous. Other species like the ruffed and sharp-tailed grouse, merlin, goshawk, great blue heron, horned lark, meadow lark and snowshoe hare begin to appear. Pheasant numbers are fewer in this area than in the prairie region.

Foothill Region

The foothill regions, east of the Rockies, are ridged, heavily forested areas with scattered grasslands in the broader valleys and sparse trees along the higher crests. Many of the same species found in sub-alpine areas can be seen in the upper foothills closest to the mountains. The lower foothills are home to moose, elk, deer, bear and water-loving mammals such as beaver and otter. Pheasants are rarely seen here except on the fringes of cereal crop areas.

Boreal (Northern) Forest

The boreal forest covers most of northern Alberta. Various mixes of poplar and white spruce grow here. Slow growing black spruce muskeg and tamarack swamp cover the poorly drained lowlands and flats.

Many large game species such as moose, elk and deer and a few woodland caribou live here. Other species include wolves, bear, lynx, owls, red squirrels, snowshoe hares, weasels, other small mammals and many bird species. Pheasants are rarely seen in this area.

Alpine (Mountain) and Sub-alpine Regions

Alpine zones are generally those above the treeline while sub-alpine are those below. Above the treeline, vegetation is limited to grasses and low growing shrubs. Below the treeline, habitats along the Rocky Mountains are usually evergreen (coniferous) forests. They may give way to mixed deciduous (leaf shedding) and coniferous or pure deciduous forests at lower altitudes and gentler slopes.

Some of the many wildlife species found in this region include bighorn sheep, mountain goats, cougars, eagles, blue grouse, marmots, and grizzly bears. This region does not provide good habitat for pheasants.

Fact Sheet 4

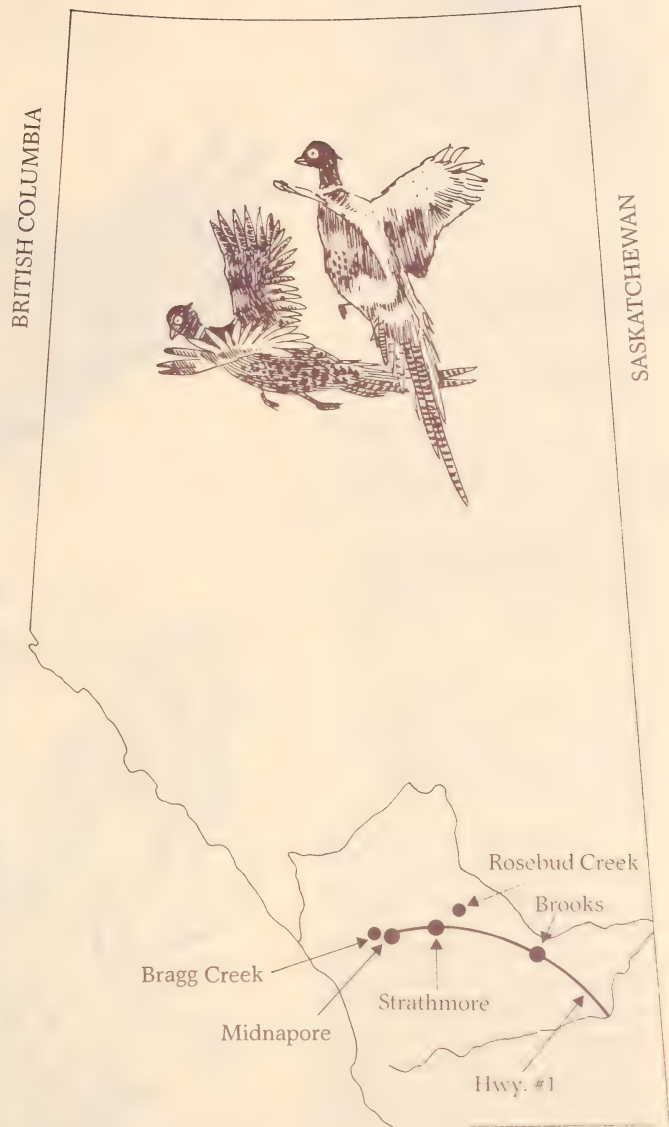
The Ring-Necked Pheasant Comes To Alberta

History

The ring-necked pheasant is not native to Alberta. It was brought to North America in 1881 when 200 ring-necked pheasants from Asia were released in Oregon. Twenty-seven years later a group of Calgary sportsmen introduced the bird to Alberta by releasing 80 birds near Midnapore, Bragg Creek, Rosebud Creek and Strathmore. A couple more releases, followed by a program of distribution of young pheasants and eggs to farmers near Brooks, Lethbridge, Camrose and Edmonton saw a great increase in numbers.

Alberta held its first open hunting season for pheasants in 1932. In 1945 a provincial government hatchery was set up at Brooks to raise and distribute birds in cereal crop regions of the province.

Pheasant numbers peaked in the early 1960's. Since then, numbers have declined and in some areas have disappeared completely. Many reasons for fewer numbers have been voiced: foxes, weather conditions, farming practices, disease, pesticides, habitat loss and overhunting.



Early Pheasant Release Sites in Alberta

Brooks Wildlife Centre

The center at Brooks, Alberta, operated under the Fish and Wildlife Division of Alberta Energy and Natural Resources, was originally called the Brooks Pheasant Hatchery. Its purpose was to raise pheasants for release into areas where they could survive. When activities at the hatchery grew to include pheasant research, research and production of waterfowl and research and rehabilitation of birds of prey, the name was changed to the Brooks Wildlife Centre.

The centre produces over 100,000 pheasant chicks from March to July. About half are raised by the centre and released to the wild in the fall. Some are kept for breeding. The rest are distributed at one day to six weeks old to Albertans who can provide suitable rearing pens and release areas. Many chicks go to the 4-H pheasant raising project. Six-week old birds usually are given only to fish and game clubs.

All the centre's efforts are in vain though, unless the pheasant is provided with suitable habitat. To ensure the pheasant's future well-being in the province, help is required to protect, develop and improve habitat. The Brooks Wildlife Centre works with a number of groups including 4-Hers who want to protect and improve wildlife habitat.



Fact Sheet 5

Problems Facing The Pheasant

Pheasants produce many young. One pair could produce 20 million birds in 10 years if they all survived. But pheasants also have high death rates. In Alberta, 60 to 90 per cent do not survive from one breeding season to the next. They die from a number of causes (mortality factors) but most of these causes do not affect numbers as a whole. The main reason there are fewer pheasants today is disappearing habitat.

Habitat

Many changes in land use have taken place in Alberta during the past 40 years. Unfortunately, pheasant habitat has suffered as a result.

Fewer acres of cereal crops and more acres in pasture combined with more cattle production have seriously affected pheasant populations. Wasteland acreage has dwindled with the use of wetland drainage, herbicides (chemicals to control weeds), and larger, cleaner fields with fewer fence lines, weed patches, irrigation ditches, shelterbelts or abandoned farmsteads. More cropping, grazing and fall plowing leave fields bare of food and cover needed by pheasants to survive. Rights-of-way along roads and railroads which provided excellent habitat in the past are now burned off or controlled with herbicides. Even replacing telephone poles with buried cable affects the birds. Mowing equipment unable to cut close to the poles leaves good patches of cover around them.



Weather

Pheasants do not do well in areas with lots of snow. Their numbers are much higher in regions like southern Alberta which enjoy many chinooks. In these areas, complete snow cover rarely lasts more than two weeks. Severe blizzards, which fortunately are rare in Alberta, can kill most pheasants in a few days. The birds suffocate when their nostrils fill with ice and snow. They can survive these storms only under excellent protective cover.

Cold, wet weather during the hatching period in mid-June affects hatching success. Pheasant populations recover after one bad year but two or three bad years in a row during hatching can limit their numbers severely.

Predators

Many creatures eat pheasants including coyotes, foxes, skunks, badgers, hawks, owls, weasels, cats and dogs. Predators are a large cause of pheasant deaths but need not be serious to pheasant numbers as a whole. When birds are plentiful, predators kill many but when they are scarce, predators seek out more plentiful species like rabbits or mice. Many of the birds caught by predators are sick or disabled and would probably die from other causes anyway. In this way, predators perform a "cleaning" function. Predator-prey relationships serve an important natural function and generally should not be tampered with. Rather than try to reduce the number of predators, it is better to improve pheasant habitat so the birds have more and better places to escape to.

Pesticides

Insecticides (chemicals to kill insects) can weaken and sometimes kill pheasants. They can also affect their ability to reproduce.

Herbicides (chemicals to kill weeds) affect pheasants too. They destroy plants the birds depend on for shelter, nesting and roosting.

Pesticides can also make pheasants unsafe for man to eat. The 1969 hunting season was closed because mercury was found in the birds. Mercury has since been banned and pesticides are controlled more strictly in Alberta today.

Diseases

Diseases in wild pheasants have been noted but are not a great problem. They usually affect only very young, very old or weakened birds suffering from poor food, stress, or crowding. Again, habitat plays a big role. Poor habitat exposes the birds to bad weather and weakens them, making them more likely to catch diseases.



Hunting

Although many birds are killed during hunting season, hunting does not limit populations. As mentioned earlier, pheasants are able to produce many more young than the carrying capacity of the habitat can support. The extra birds die whether they are hunted or not.

A high harvest of cocks (males) during hunting season can actually improve pheasant production the next year. Removing cocks also leaves room for more hens to survive the winter as habitat supports only a certain number of birds. Any numbers beyond

the carrying capacity of the habitat have to move or they will die.

Since one cock can service 10 hens, there is no advantage of having more males. A ratio as high as one male to ten females has never been recorded in North America. The highest ratios in Alberta were recorded during peak populations in the '30's. They were one male to six or seven females. Today in the Lethbridge area, there is about one cock for every four or five hens. In the Brooks area the average ratio is about one cock to every two or three hens.

Fact Sheet 6

Life Cycle of the Pheasant

Breeding

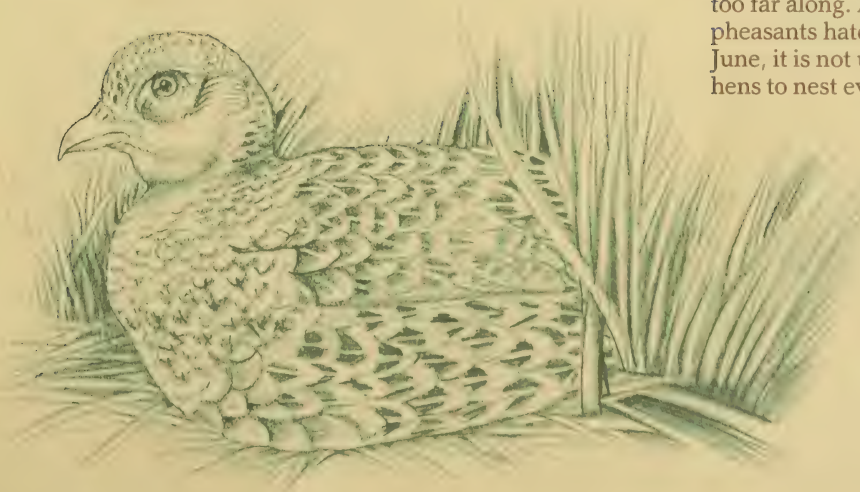
Pheasants usually begin to mate in April. In preparation for mating, cocks begin to set-up territories in March. They crow to attract hens and warn other cocks to stay out of their territory. Each cock attracts an average of three to four hens and occasionally, as many as ten. Most breeding occurs in May and June.

Nesting

After mating, hens search for nest sites. Nesting can begin as early as mid-April and most chicks are hatched by about mid-June. Hens look for sites with good cover. If they begin laying eggs before suitable nests are started, the eggs are dropped at random or deposited into "dump nests". Sometimes, dump nests contain as many as 50 eggs.

The nest itself is a shallow depression lined with grass and leaves. Each nest usually contains an average of 12 eggs which are laid at the rate of about one a day.

Hens sometimes desert nests if the area is too crowded or cover is poor. Sometimes, too, nests are destroyed by predators and farm equipment. Hens will re-nest several times as long as they are capable of laying eggs, if the incubation season is not too far along. Although most pheasants hatch by the end of June, it is not uncommon for hens to nest even into August.



Brood Rearing

It takes a hen about two weeks to lay a clutch of eggs. Hatching does not start until the clutch is complete so all eggs hatch within a few hours of each other. Most chicks hatch about mid-June. The chicks leave the nest and begin feeding within hours of hatching. At one week old they can make short flights.

Cold wet weather after hatching takes a heavy toll as the chicks' light down coats offer little protection. Predators and accidents also kill many chicks.

During the first three weeks the brood stays within two to four hectares of the nest. The chicks feed on insects until six weeks of age when their diet changes to plants.

At four weeks of age (usually around mid-July), adult plumage begins to replace juvenile plumage which replaced down almost immediately after birth. At eight weeks of age, it is easy to tell the difference between cocks and hens and at 21 weeks (usually around the end of November), it is hard to tell juveniles from adults.

Many hens die during this summer period due to the stresses of mating, egg laying, incubation, brood rearing and molting.



Fall and Winter

Lots of good food is usually available in the fall to prepare the birds for the long winter ahead. Winter is the hardest time of year for them. They move many kilometres to look for shelter and high energy foods.

In late winter sex organs enlarge and by the end of March both sexes are capable of reproduction.

Fact Sheet 7

Different Habitat Needs in Each Season

The best pheasant habitat in the prairie region is a farm of about 65 hectares with half to three-quarters of the land under cultivation. At least six per cent should be idle or waste land. Year round food supplies such as grain, corn and weed seeds should be available with cattle grazing light to moderate.

Good travel lanes are important too. Travel lanes are paths with good cover that animals use to move between food and cover without being detected. The wider these travel lanes are, the less chance of being caught by predators. Shelterbelts and grassy ditches make good travel lanes.

In addition to these year-round habitat needs, the pheasant has different requirements for each season.

Spring

When the snow melts, pheasants feed mainly on grain leftover from the previous fall. They also eat insects and green herbage.

Although their diet is usually low in calcium, they need it at this time of year for egg production and growth in young chicks. Calcium in the form of limestone grit also helps the gizzard grind food.

Pheasants also need loose soil and dirt for daily dust bathing. Dust bathing takes away excess oil from the feathers and helps control lice and parasites.

During breeding, when the male establishes a crowing territory, it looks for a mixture of thick cover and open flat

terrain. Meadows blended with marsh, brush and tree clumps make good crowing territories. Vegetation should include a mixture of grasses, hay, pastures and coarse weeds.

Ideal nesting sites usually have 25 to 30 centimetres of cover remaining from the previous fall and rapid early spring growth. Nests are often found along roadsides, irrigation canals, fence rows, railways, in alfalfa fields, winter wheat, weed patches, stubble fields, brushy areas and around wetlands. If their nests have been destroyed by swathing, hens often re-nest in hayfields once the crops grow high enough to provide good cover.

Summer

Young birds usually hatch about mid-June. For the first nine weeks of life, they eat mainly insects. Then, they switch to mostly grains. Adults eat both insects and plants.

Chicks stay close to the nest during the first three weeks of life. Cover should be dense and tall enough to protect the young from predators but not too dense to prevent the hens from keeping the brood together. Hayfields make good brood cover.





Fall

The birds continue to rely on farm crops for food in the fall. They also eat corn and weed seeds such as foxtail and sunflower. During fall, the pheasants move toward low-land areas where they can find cover in retired croplands and wetlands. Brushy woodlots, fencerows and stubble fields become important roosting sites.

Winter

Farm crops continue to be an important food source but if snow covers them, the birds shift to wild fruits and berries. They rarely venture more than a half kilometre from cover to search for food in winter.

In prairie habitat the birds roost along brushy stream beds and irrigation canals, cattail marshes, sedge meadows, farmyards and abandoned farmyards. In the parkland region, they also roost in evergreens and caragana close to food sources. They often move to vegetated ditches which provide protective cover despite snow drifting. Lack of thick overhead cover means they can escape without running. In good weather, they can be found in grassy areas, uncut alfalfa and sweet clover. During bad weather they move to dense woody and brushy cover.

As spring nears, pheasants scatter and begin breeding rituals.

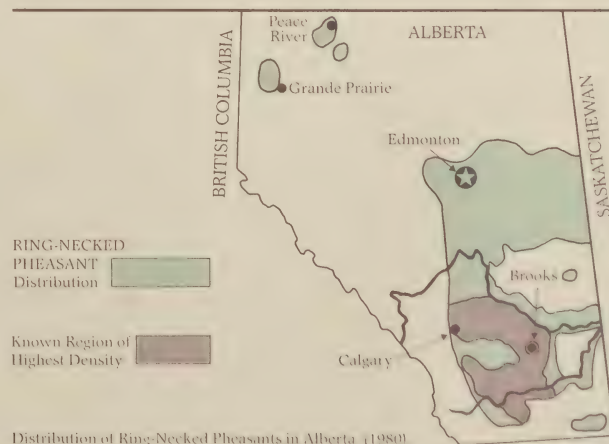
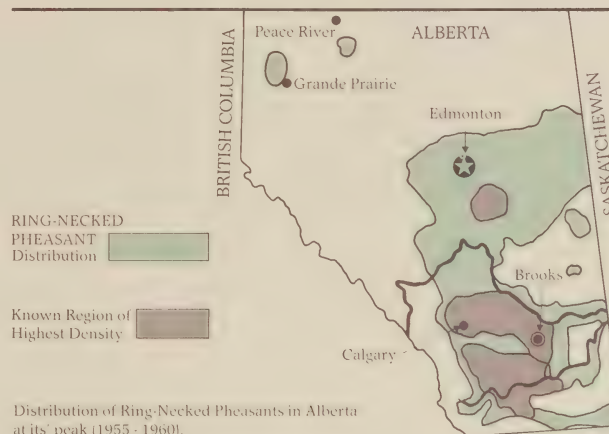
Fact Sheet 8

Pheasant Range in Alberta

Areas providing the best living conditions for the pheasant in the province are in southern Alberta in the prairie region. The irrigation areas around Lethbridge, Strathmore, Brooks, Taber, Raymond and Magrath provide good habitat due to the variety in crops and vegetation. Many chinooks hitting southern Alberta keep snow levels down, an important factor in the birds' survival over winter.

But pheasants are facing severe challenges in these areas with changing irrigation techniques. Their habitat is quickly disappearing as methods of irrigation become better. The old methods left more waste land which provided ideal pheasant cover.

From a farming point of view, though, these methods left much to be desired. Water leaked from irrigation ditches onto the land, making it too waterlogged to cultivate. Canal rights-of-way were too steep to farm. Brush and trees growing along the ditches clogged them and used up part of the water supply. Since ditches followed the lay of the land rather than property boundaries, many field corners were not able to be irrigated and were left as waste.



New irrigation methods use canals lined with concrete or plastic to stop leakage. Trees, weeds and brush along rights-of-way are killed by chemicals or burning. Ditches are filled in to make way for sprinkler equipment and new ditches are built along property lines. Canals are dredged and treated with herbicides to improve water flow. All these changes mean more land can be cultivated. Unfortunately, the new techniques also mean less cover for pheasants.

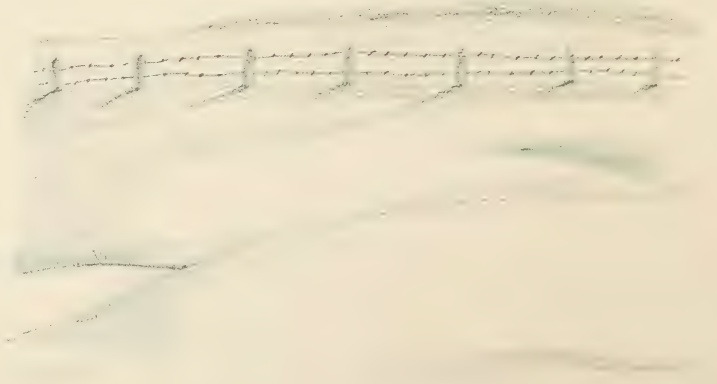
Dryland farming and ranching areas around Hussar, Youngstown, Empress, Vulcan, Barons, Foremost, Milk River, Manyberries and Medicine Hat, do not make good pheasant habitat. They lack travel lanes provided by fences and irrigation canals that allow pheasants to move safely to and from brushy and cultivated areas. Although there is more wasteland in the dryland areas than in the irrigated districts, much of it is too saline (salty) to support anything but a few species of plants. Much of the area also lacks enough water for the birds to survive.

Pheasants can be found in parts of these areas, though, along river and creek bottomlands, coulees, wetland areas or shelterbelts.

Pheasant range is limited to the west by the foothills region. Large grazing areas which lead into heavy foothill cover do not provide enough suitable food and cover for pheasants. Also the birds can tolerate only a few inches of snow and the foothills area usually gets several feet.

Their range to the north is also limited by snow. The pheasants can rarely survive out of the chinook belt.

Good habitat



Poor habitat

Fact Sheet 9

These Practices Harm Wildlife

Burning

Burning stubble or crop residues to control weeds is of little benefit and can actually harm the land. It is wiser to mow or plough the residues back into the soil.

Burning cropland can harm wildlife by removing protective cover and nesting sites provided by stubble, plant residue and woody brush.

If burning is necessary, it should take place in early or mid-April as later burning destroys more nests.

Early Tillage, Late Plowing

Summer fallow is often tilled early in the spring. If it is left until later, then plowed twice, the farmer sometimes avoids another tillage without loss of soil water or increase in weed problems. Fall plowing exposes the soil to moisture loss and wind erosion.

Often land is plowed during peak nesting times and many nests are destroyed. Pheasants will re-nest but lay fewer eggs the second time. Leaving the plowing until spring also means crop cover will provide birds with food and shelter over the winter.

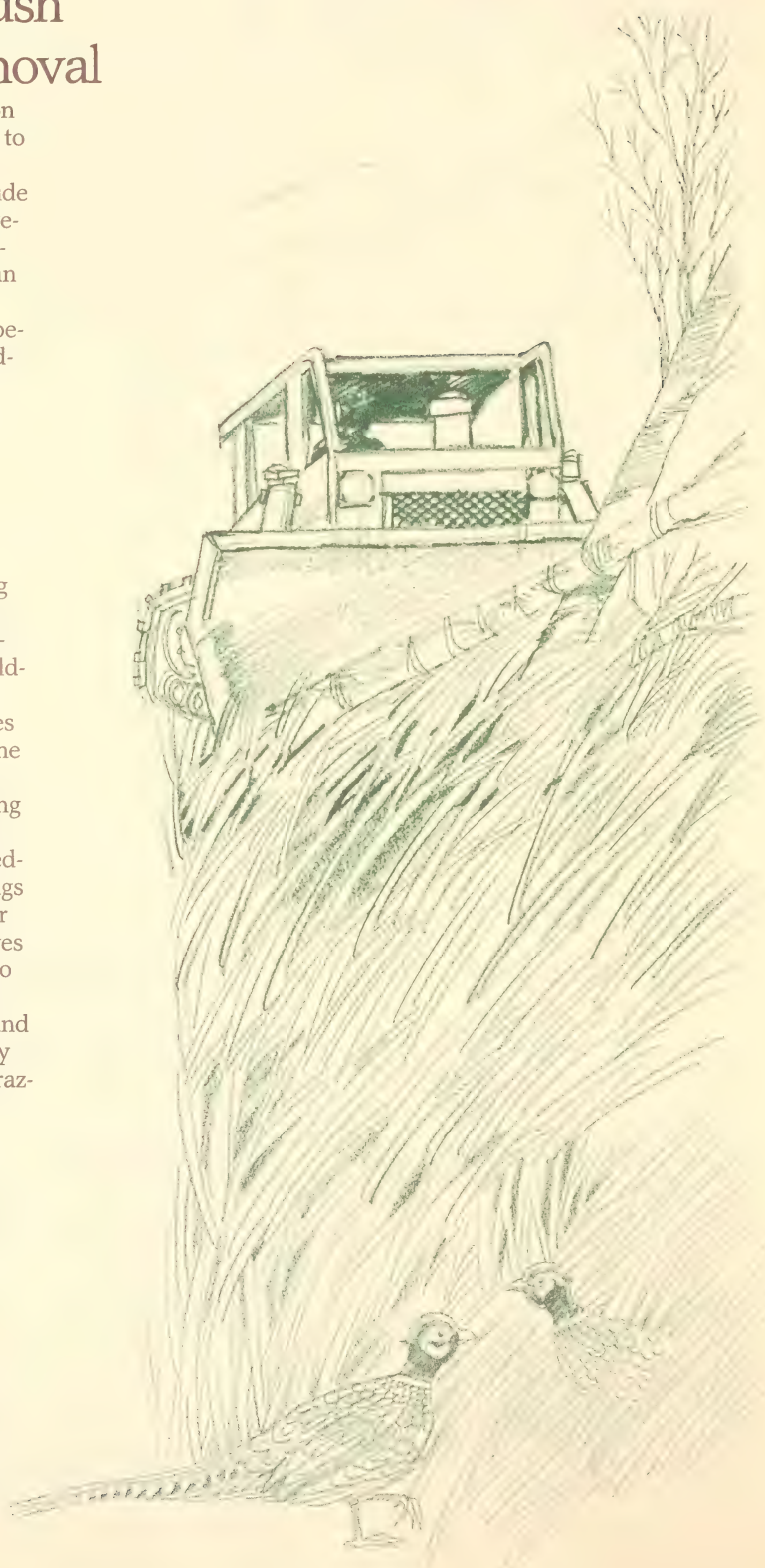


Complete Brush or Shrub Removal

Shrubby patches left on grazing lands do little harm to farm or ranch operations. Advantages they offer include shade and protection for livestock, and reducing soil erosion. Undesirable shrubs can be burned or killed and replaced with a desirable species. They are useful to wildlife as winter cover.

Overgrazing

Although some grazing can be beneficial, stock can cause severe damage to pasture, woodlands, and all wildlife habitat if grazing is not controlled properly. Pastures should be well managed. The type of plants and their growth should decide grazing patterns. Stock can damage woodlands by browsing seedlings, breaking down saplings and injuring roots with their hooves. Overgrazing removes herbage exposing the land to soil erosion and destroying wildlife habitat. Wetlands and woodlots should be partially fenced off to prevent overgrazing and overuse.



Fact Sheet 10

These Practices Help Wildlife

You can improve your land for pheasants and other wildlife in a number of ways without great expense. Pheasants especially, respond quickly to even small habitat improvements. In many cases, practices to improve pheasant and wildlife habitats provide other benefits to the landowner.

Shelterbelts or Windbreaks

Shelterbelts protect fields from wind and soil erosion and drifting snow. A shelterbelt with many rows of trees and shrubs around a farmstead also reduces home heating costs, protects buildings and machinery from snow and rain, shelters livestock from wind and adds beauty to the property. These advantages outweigh the disadvantage of having to take shelterbelt land out of crop production and the problems of trying to use farm equipment around them.

Shelterbelts supply wildlife with excellent cover and travel lanes. A shelterbelt with three to five rows is better than a single row shelterbelt. The best shelterbelts are a row of trees with rows of shrubs and then grass and legumes on each side. More rows can be planted on the leeward or protected sides of shelterbelts for extra protection. A row of evergreens provides good winter protection. Multi-stemmed and berry-producing trees and shrubs are best since they provide both food and cover.



Cover and Border Planting

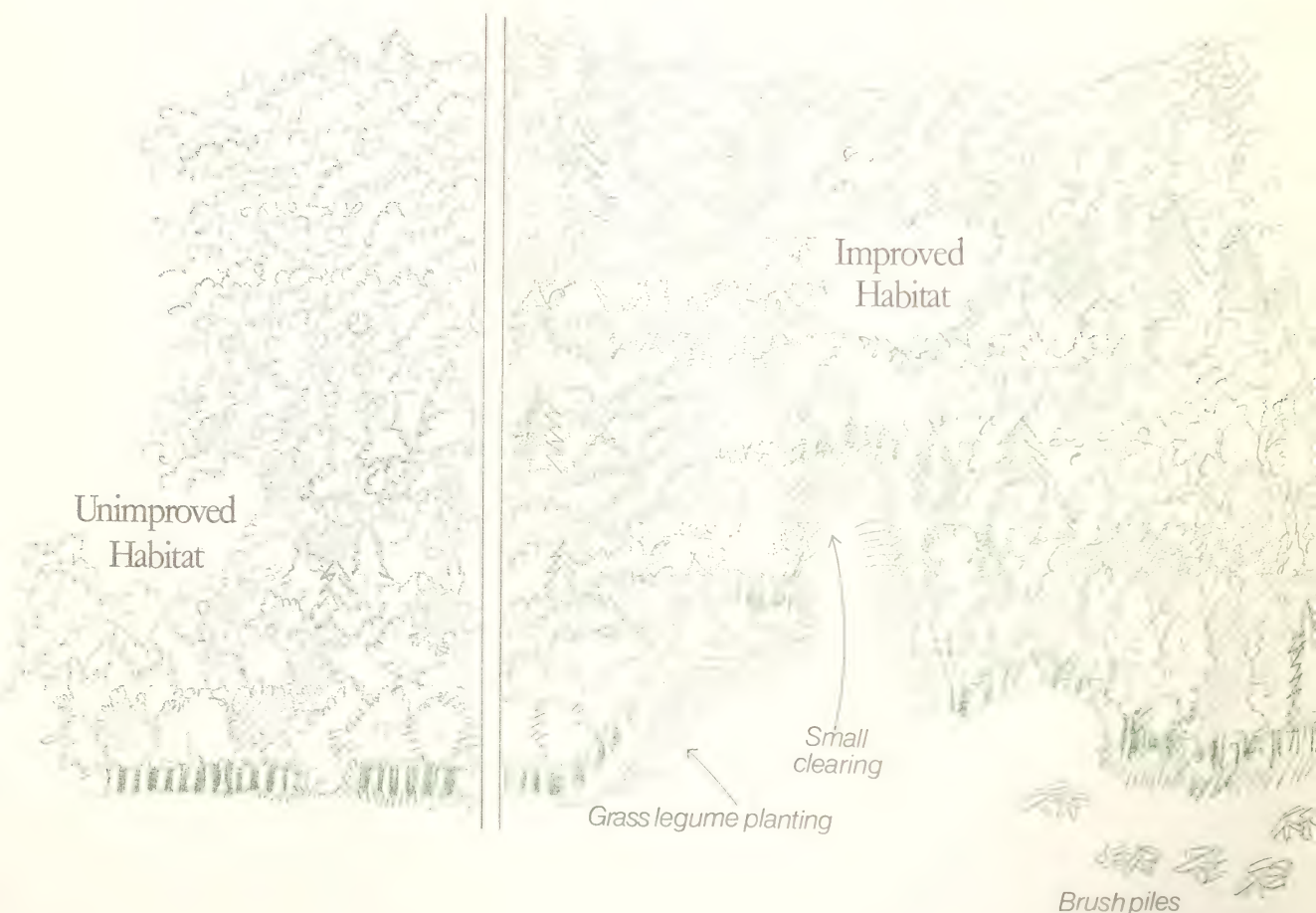
Cover crops are used mainly to control soil drifting. Fields with high wind erosion can be planted in permanent grass-alfalfa cover. Winter wheat planted in late summer and harvested the following summer makes an excellent cover crop. Legume-grass borders stabilize the soil at the field edge and provide a place to turn farm machinery.

Cover plants provide good winter protection and food sources. Part of a grain crop left unharvested near the cover provides an extra source of food.

Uneven Edges

Cutting back forest edges to make way for brush and shrubs improves crop growth by cutting down competition between crops and trees for sunlight and water. A border of perennial forage can be planted to prevent weeds from taking over crop land.

Brush piles along the edge provide travel and escape cover. Low shrubby vegetation supplies nest sites and winter cover.



Protecting and Improving Odd Areas and Abandoned Farmsteads

Odd areas are patches of waste land such as rocky areas, field corners and gullies or old farmsteads no longer under cultivation. They may be worthless for crops and livestock but they mean a lot to wildlife. These areas should be protected from fire and grazing. A living fence of thorny shrubs like caragana keep livestock out of the areas. At the same time, the fence offers cover to pheasants.

Odd fields and abandoned farmsteads provide good wildlife habitat. Those taken over by shrubs, small trees, grasses and forbes enjoy lots of wildlife use. Planting clumps of shrubs in old fields improves their wildlife value. Old shelterbelts and wind-breaks should never be removed as these provide valuable travel lanes to wildlife.

A clump of evergreens planted in the centre of a rocky outcrop or bare knoll provides good winter cover for wildlife. Brush and straw added to rockpiles make good

emergency food and winter cover.

Field corners that can't be cultivated provide good cover if planted in a mixture of trees, shrubs and forage. A few rows of grain left over winter next to the corners make these areas valuable winter spots for pheasants, partridge and grouse.

Gullies on agricultural land are a sign of soil erosion. They should be filled in and seeded with grasses to build sod and add nitrogen. Shrubs and small trees planted in the filled-in gully increase its usefulness as wildlife habitat. Where gullies are so wide they cannot be filled in easily, a checkdam can help stop or redirect water. Checkdams can be made of brush, loose stones, sod strips and trash held in place by wire and stakes. Planting the areas in alfalfa, clover, and wheatgrass helps prevent further erosion and provides nesting and escape cover for pheasants.



Winter Feeding

Scattering grain piles at field edges close to winter cover can be of great benefit to pheasants and grouse when food supplies run out or become covered with snow. A feeding program must continue for the rest of the winter as once started, the birds depend on the food source.

It is best to create a number of different feeding spots because predators as well as pheasants are attracted to feeding areas. Also, try to choose spots with protection from winter storms. Abandoned farmsteads with shelterbelts, grassy, weedy yards and buildings are a good choice. Cattail sloughs, farmyard shelterbelts and creek bottoms with good connecting travel lanes also make good sites.

Fencerows and Hedges

Hedges or shrubby fencerows help stop wind erosion. They also trap snow moisture. Thick hedges can also be used as livestock fences.

For wildlife they provide food and cover. Pheasants use them for travel lanes. The wider these travel lanes are, the better. Fencerows can be widened by planting grass and legume mixtures on each side of the fence or by leaving strips uncultivated. Grassy strip cover should be burned or mowed every four to seven years to prevent woody growth from taking over the grassy area.



Pheasant Game of Life

How to Play

1. One to four players can play the game.
2. Take the Pheasant Game of Life Sheet out of the pocket at the back of the book. Cut out the die, markers, hiding places and cover cards. Place the hiding places and cover cards on the board. Assemble the die.
3. Each player picks a marker and places it on the start square. The first player to go around the board and return to the finish square wins.
4. Each player rolls one die. The player with the highest roll moves first. The player to the left goes next and so on.
5. Each player rolls one die and moves the number of squares rolled. The player follows instructions on the square.

A player who lands on a cover square picks up a cover card. The card indicates the quality of cover present and instructs the player as follows:

Good cover — Take another turn

Fair cover — Stay on space

Poor cover — Lose a turn

A player who lands on a predator square reads the cover type and notes the number of hiding places to pick. In good cover, a player picks one hiding spot. In fair cover, a player picks two hiding spots. In poor cover, the player picks three hiding spots.

While the player's eyes are closed, another player puts a Gotcha under one of the four hiding places. The player must turn over the number of hiding spots shown by the cover type. If the Gotcha is uncovered, the player has been caught by a predator and must go back to the nearest green square.

6. The exact number must be rolled to finish.

Pheasant Game of Life

1

2

1

2

3

4

3

4

GOTCHA!

GOTCHA!

GOTCHA!

GOTCHA!

HIDING PLACE

HIDING PLACE

HIDING PLACE

HIDING PLACE

COVER CARD

GOOD COVER

Take Another Turn

COVER CARD

FAIR COVER

Stay On Same Square

COVER CARD

POOR COVER

Lose A Turn

COVER CARD

FAIR COVER

Stay On Same Square

COVER CARD

GOOD COVER

Take Another Turn

COVER CARD

FAIR COVER

Stay On Same Space

COVER CARD

FAIR COVER

Stay On Same Space

COVER CARD

POOR COVER

Lose A Turn

1

3

5

6

2

4

COVER CARD

POOR COVER

Lose A Turn

COVER CARD

FAIR COVER

Stay On Same Square

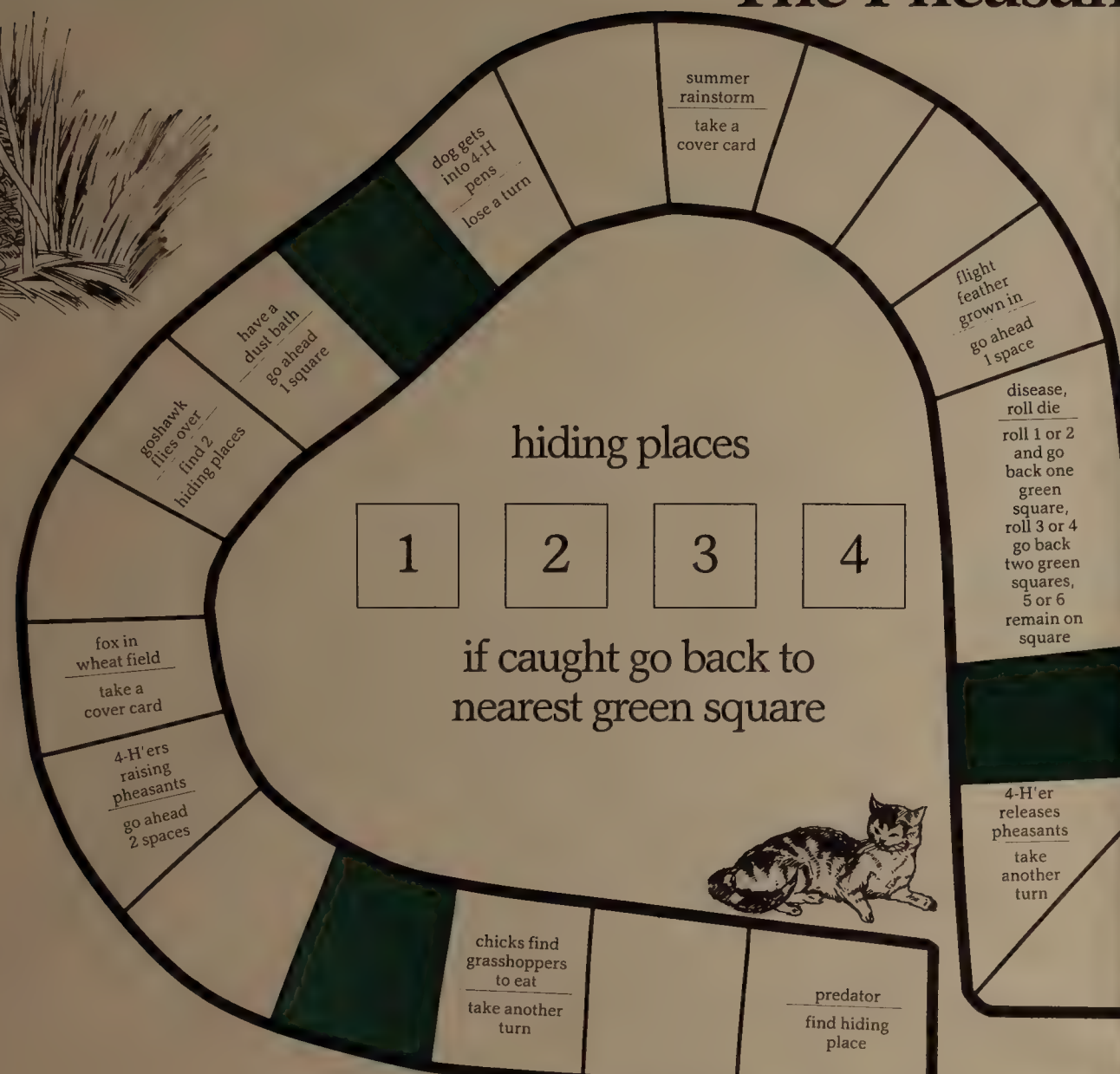
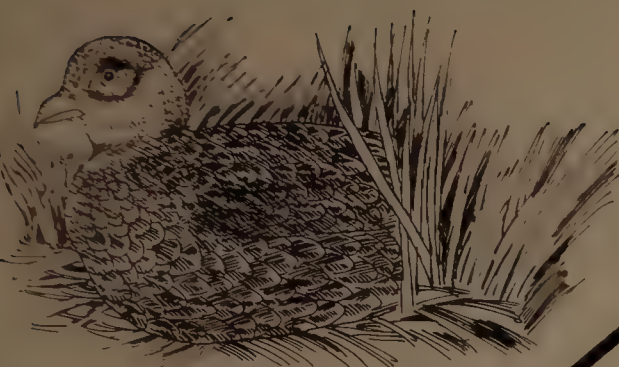
COVER CARD

POOR COVER

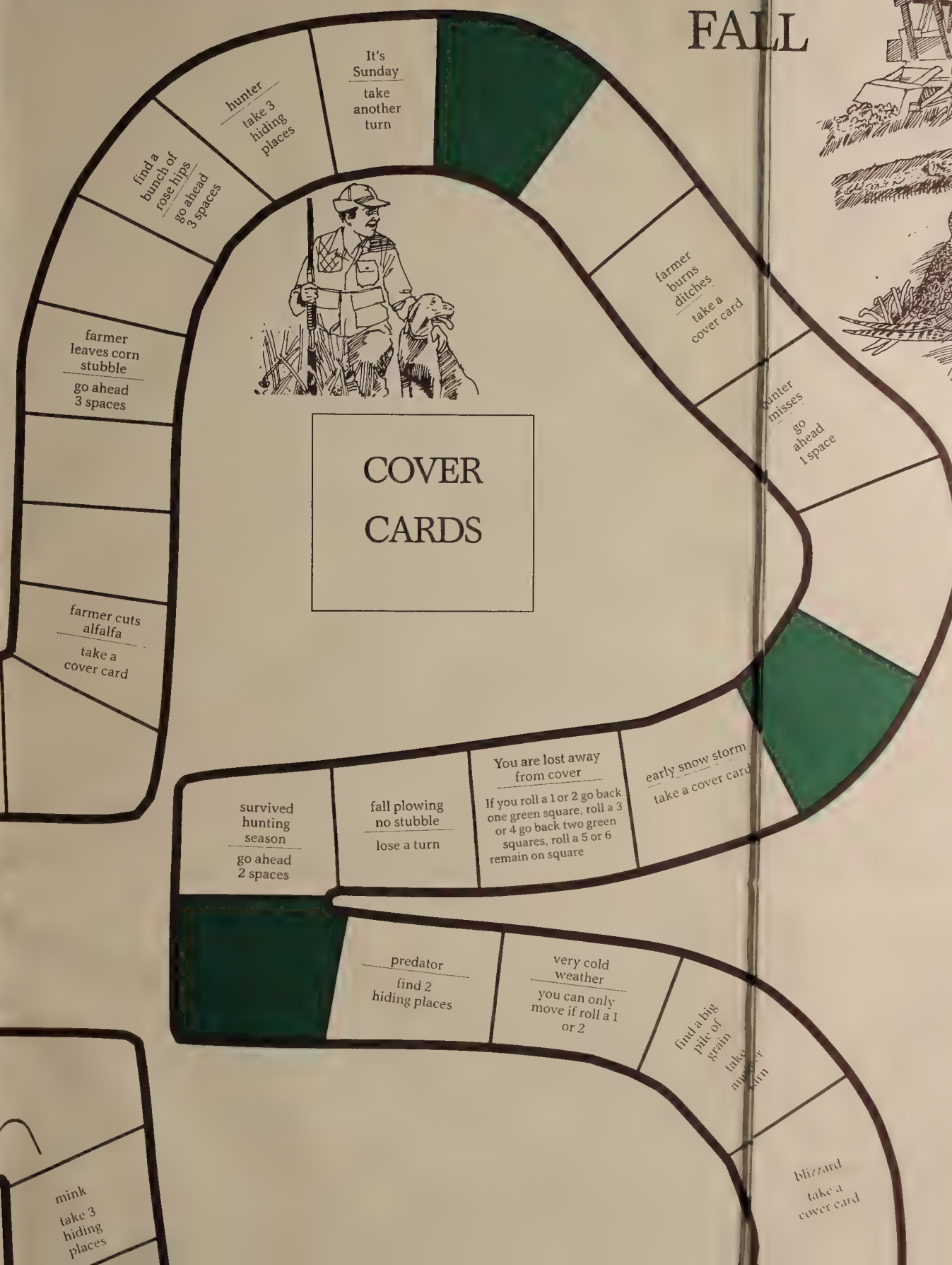
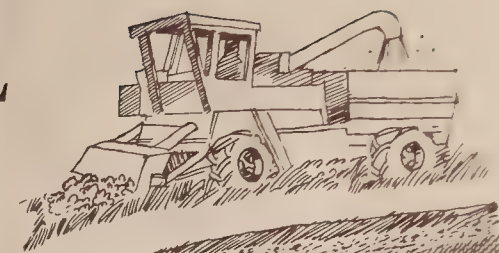
Lose A Turn

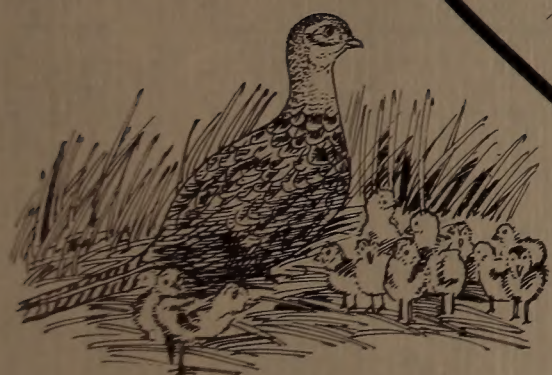
The Pheasant Game of Life

SUMMER



FALL





SPRING



WINTER

Metric Multiples and Prefixes Table

Multiplying Factor

1,000,000 = 10^6
1,000 = 10^3
100 = 10^2
10 = 10^1
(Base Unit) 1 = 10^0
0.1 = 10^{-1}
0.01 = 10^{-2}
0.001 = 10^{-3}
0.000,001

Prefix

mega (meg a)
kilo (kil o)
hecto (hek to)
deka (dek a)
deci (des i)
centi (sen ti)
milli (mil i)
micro (mi kro)

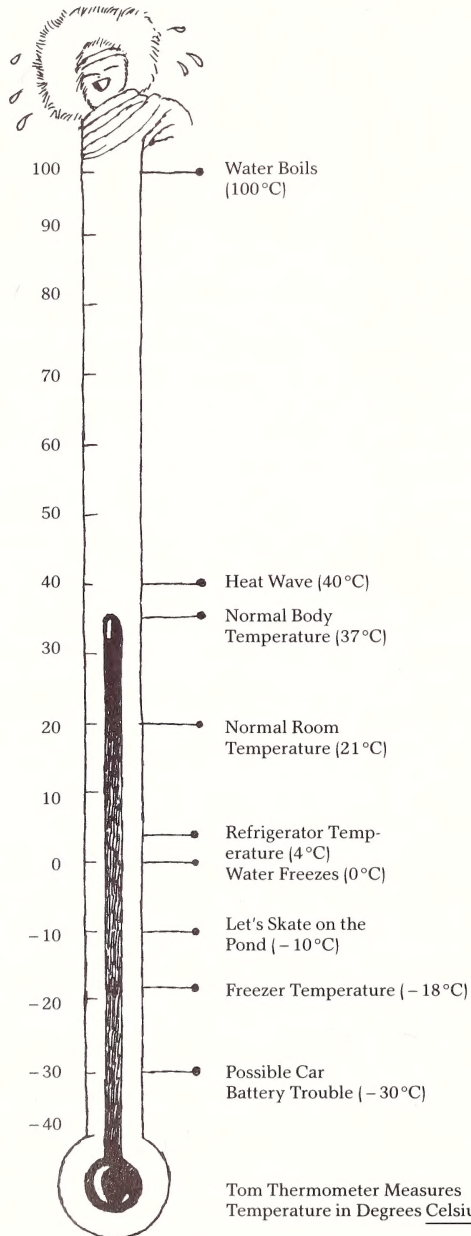
Symbol

M
k
h
da
d
c
m
μ

(These prefixes may be applied to all metric base units.)

Example: Base Unit = litre

Add kilo to litre (symbol kL) = kilolitre. The multiplying factor is 1000. This means a kilolitre equals 1000 litres.)



Temperature: °F = $9/5 + 32$
°C = $5/9 - 32$

Oven Temperatures:

	°C	°F
Very low	120-135	250-275
Low	150-165	300-325
Moderate	175-190	350-375
Hot	200-220	400-425
Very hot	230-245	450-475
Near boil	245-290	475-500

Additional Metric Information

from:

Metric Commission Canada
Box 4000
Ottawa, Ontario

Information Division
Canada Department of Agriculture
Ottawa, Ontario K1A 0C7

District Extension Office

OR

Publications Office
Alberta Agriculture
7000 - 113 Street
Edmonton, Alberta T6H 5T6

<p>April Mating begins.</p> 	<p>Dec., Jan., Feb. Birds eat wild fruits and berries.</p> 	<p>November Juveniles look like adults.</p> 	<p>August Hens renest till this month.</p> 	<p>May Most nesting begins.</p> 
<p>Dec., Jan., Feb. Birds move to brushy cover.</p> 	<p>Sept., Oct. Lots of food available.</p> 	<p>Dec., Jan., Feb. The hardest time of year.</p> 	<p>March Males set up territories.</p> 	<p>June Most chicks are hatched.</p> 
<p>October Pheasants move to lowland areas.</p> 	<p>July Adult plumage replaces juvenile plumage.</p> 	<p>Farley Pheasant Fan Club</p> 	<p>Farley Pheasant Fan Club</p> 	<p>Farley Pheasant Fan Club</p> 
<p>Herbivore</p>  <p>Insect</p>	<p>Omnivore</p>  <p>Sharp-tailed grouse</p>	<p>Herbivore</p>  <p>Rabbit</p>	<p>Carnivore</p>  <p>Badger</p>	<p>Farley Pheasant Fan Club</p> 
<p>Green plant</p>  <p>Blue Bells</p>	<p>Herbivore</p>  <p>Deer</p>	<p>Carnivore</p>  <p>Great horned owl</p>	<p>Decomposer</p>  <p>Worm</p>	<p>Farley Pheasant Fan Club</p> 

Project Co-ordinator: Sandy Behnke
4-H Branch,
Alberta Agriculture

Writer: Cheryl Clarke

Graphic Designer: Bobby Mok

Editorial Committee: Douglas F. Culbert
Fish and Wildlife Division,
Alberta Energy and Natural Resources
Lyle Lester,
Fish and Wildlife Division,
Alberta Energy and Natural Resources
Dave Moyles,
Fish and Wildlife Division,
Alberta Energy and Natural Resources
Leonard J. Shandruk,
Canadian Wildlife Service,
Environment Canada



Alberta
AGRICULTURE
4-H BRANCH



Environnement Canada Environment Canada
Service canadien de la Canadian Wildlife
faune Service

Alberta
ENERGY AND
NATURAL RESOURCES
Fish and Wildlife Division



RECREATION, PARKS AND WILDLIFE FOUNDATION